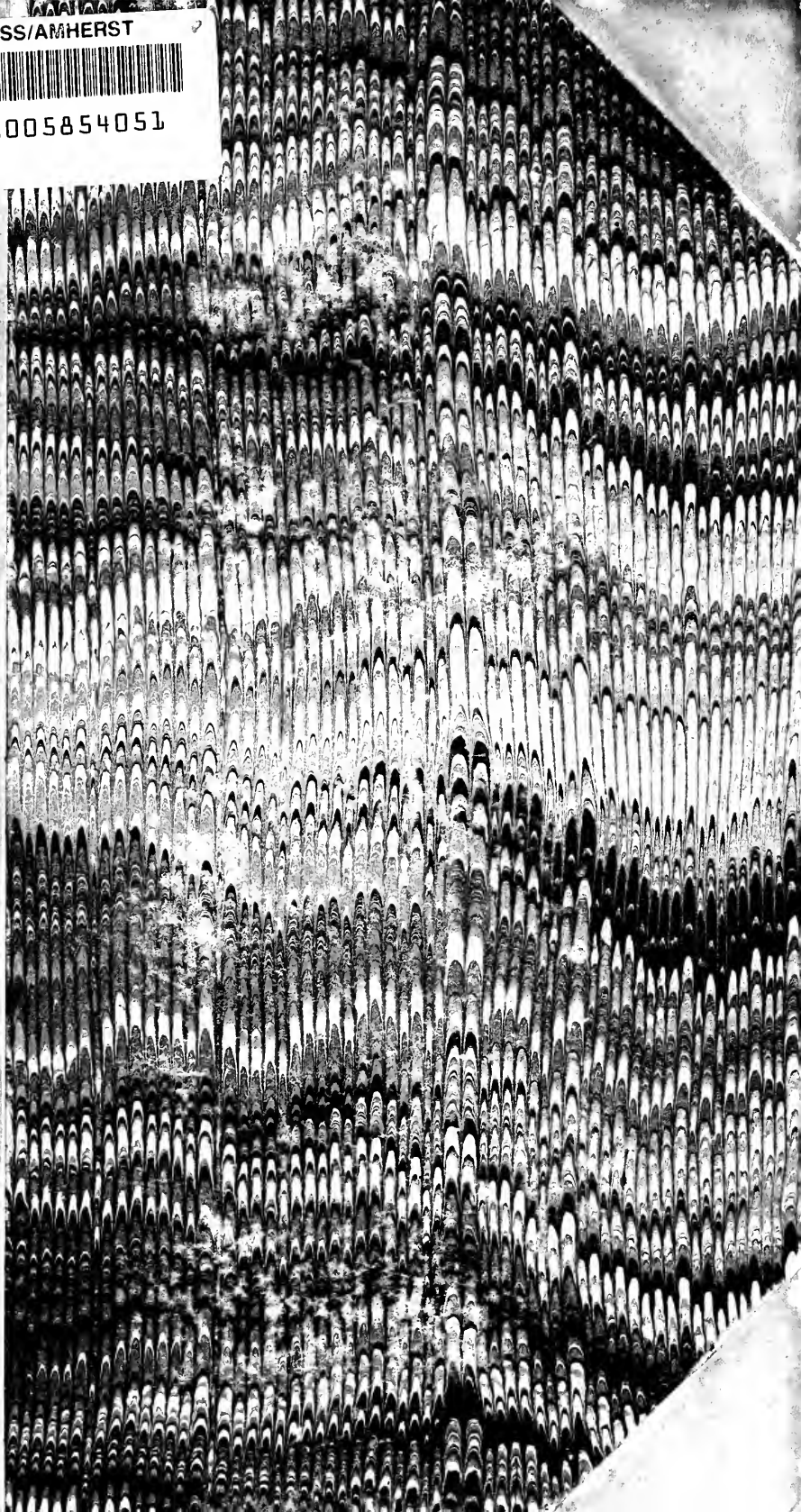


UMASS/AMHERST



312066005854051



1849
L. Flint
24738

LIBRARY



UNIVERSITY OF MASSACHUSETTS
LIBRARY

S
96
N43
v.8
1849

CHAP.

CHAP.

Date Due





EIGHTH

ANNUAL REPORT

OF THE

AMERICAN INSTITUTE,

OF THE CITY OF NEW-YORK.

Made to the Legislature, February 26, 1850.

ALBANY:
WEED, PARSONS & Co., PUBLIC PRINTERS.
.....
1850.



OFFICERS AND COMMITTEES OF THE AMERICAN INSTITUTE, 1849, '50.

TRUSTEES.

JAMES TALLMADGE, ^m*President*.
JOHN D. WARD,
JOHN CAMPBELL, } *Vice-Presidents*.
LIVINGSTON LIVINGSTON, }
EDWARD T. BACKHOUSE, *Treasurer*.
GEORGE BACON, *Corresponding Secretary*.
HENRY MEIGS, *Recording Secretary*.
ADONIRAM CHANDLER, *Superintending Agent*.

MANAGERS OF THE TWENTY-SECOND ANNUAL FAIR.

ROBERT LOVETT, *Chairman*.

Joseph Torrey,	William Ebbitt,
James Van Norden,	John A. Sidell,
Thomas B. Stillman,	Bailey J. Hathaway,
Isaac Fryer,	George F. Barnard,
Heman W. Childs,	Alexander Knox, jr.,
Thomas W. Harvey,	Edwin Smith,
George Gifford,	H. P. Blackman,
William C. Arthur,	Ralph Hall,
Benjamin Ayerigg,	John A. Bunting,
James R. Smith,	Martin E. Thompson,
George C. Mann,	George R. Jackson,
John P. Ridner,	Gordon L. Ford.

Adoniram Chandler, *Ex officio*.

BOARD OF AGRICULTURE.

LEWIS G. MORRIS, *President*.

NICHOLAS WYCKOFF, } *Vice-Presidents*.
R. T. UNDERHILL, }

JOHN W. CHAMBERS, *Secretary*.

Philip Schuyler,	A. P. Cuming,
Thomas Bridgeman,	Peter B. Mead,
Charles Henry Hall,	Robert L. Pell,
Robert S. Livingston,	Samuel Allen,
Thomas Bell,	Ambrose Stevens,
John G. Bergen,	Barnet Johnson,
J. Lawrence Smith,	Samuel Van Wyck,
James Depeyster,	Elijah H. Kimball,
Alanson Nash,	Thompson C. Munn,
Samuel Walker,	Peter Pirnie,
John O. Choules,	Francis Barretto,
George Vail,	Adoniram Chandler,
William Watson,	John H. Coles.

COMMITTEE ON FINANCE.

John Campbell,	Geo. F. Barnard,
T. B. Stillman,	John A. Bunting,
Geo. Bacon,	Cornelius L. Sidell.
Linus W. Stevens,	

COMMITTEE ON COMMERCE.

Freeman Hunt,
Chas. Henry Hall,
George Bacon,

Abraham Bell,
Luther B. Wyman.

COMMITTEE ON MANUFACTURES.

Thomas W. Harvey,
R. M. Stratton,
Wm. Serrell,

Henry R. Dunham,
Alex. Knox, Jr.

COMMITTEE ON ARTS AND SCIENCES.

Jas. Renwick,
John D. Ward,
Benj. Ayerigg,
Jas. R. Chilton,
Horatio Allen,
Chas. W. Copeland,

John Randel, Jr.,
Jas. J. Mapes,
Geo. G. Sickles,
Jas. Bogardus,
John R. St. John,
Chas. W. Hackley

COMMITTEE ON ADMISSION OF MEMBERS.

Alanson Nash,
John Campbell,
Henry Meigs,

Geo. Gifford,
Edward T. Backhouse.

W

COMMITTEE ON CORRESPONDENCE AND THE LIBRARY.

John A. Sidell,
Philip Burrowes,
Bailey J. Hathaway,

Jacob C. Parsons,
Jacob T. Walden.

State of New-York.

No. 199.

IN ASSEMBLY, FEB. 26, 1850.

ANNUAL REPORT OF THE AMERICAN INSTITUTE.

NEW-YORK, Feb. 26th, 1850.

To the Honorable

NOBLE S. ELDERKIN,

Speaker of the House of Assembly, New-York.

SIR—I herewith transmit the Annual Report of the American Institute of the city of New-York.

Very respectfully,

Your obt. servant,

ADONIRAM CHANDLER,

Superintending Agent



EIGHTH ANNUAL REPORT

OF THE TRUSTEES OF THE AMERICAN INSTITUTE.

New-York, Jan. 7, 1850.

The Trustees of the American Institute of the city of New-York, herewith present to the New-York State Agricultural Society, a report of their proceedings for the past year, in conformity to the law passed May 5, 1841, which constituted the Institute, the Agricultural Society of the county of New-York.

The Annual Transactions of the American Institute cover an extended field, in which our fellow citizens throughout the country, who are engaged in agriculture, manufactures, commerce, and the arts, to a greater or less extent, are interested. It seems, therefore, necessary to embody in this report, every thing of interest, coming within the purview of the Institute, for the general information of all who are engaged in those great pursuits. Agriculture and manufactures are the parents of commerce ; the ingenuity of the mechanic is indispensable to them. How essentially necessary to agriculture is the labor which is applied in originating and perfecting labor-saving machines for its use ; and in improving the numerous implements it has already received from the hands of the artizan. Any attempt to separate these interests, must be injurious, and should at once be discountenanced. Let the intercourse of classes, mutually dependant, be as free as air ; the benefits resulting will be great, and as mutual as the intercourse is free.

The American Institute, located as it is in the metropolis of the Union, and embracing the great objects contained in its charter, we believe affords greater facilities for observation, enquiry, comparison, and the diffusion of important facts, pertaining to the industrial pursuits

of men, than any similar association within our knowledge. It was the pioneer in the great movement of association for disseminating useful information, and practically illustrating the productions of agriculture, manufactures, and the handicraft of the mechanic. Connected, as they intimately are and must be, with the every day wants of our citizens, it seems to have been demanded. The energies of the mechanic and manufacturer were feeble at the commencement of our operations, compared with the spirit and enterprise which now animate them. Contact with rivals, in every department, has accelerated the progress of improvement, so that now, their productions stand second to none.

Agriculture has received its full share of our labor in endeavors to promote its advancement. Years of toil, before the legislative enactment of 1841, will attest the sincerity of our devotion to that interest. The geological survey of the State originated in a petition from the American Institute for that object; and for a succession of years the Institute has been petitioning for aid from the Legislature to establish an agricultural school with an experimental farm attached. We rejoice that the Legislature has at length moved in the matter. Although the American Institute has been omitted in the measures thus far taken, it has no complaint to make, no fault to find; satisfied to the full, if the end is attained and the object faithfully accomplished, no matter under whose auspices the work may be done.

The disbursements of the Institute in sustaining its operations for the last eight consecutive years, have been over \$12,000 per annum; making a total sum of \$96,352.73. Our vouchers show that nearly one-third of this sum, or \$30,000, is chargeable to the department of agriculture. The balance to manufactures and the mechanic arts. Such has been its disbursements in defraying all its expenses. The State, under the law of 1841, has refunded \$7,600. For which, on behalf of the Institute, we tender our most sincere thanks, and solicit a continuance of this bounty; confident in the assurance that it will be faithfully, and we trust beneficially, applied.

The succeeding pages will bring to the knowledge of our fellow citizens, a somewhat detailed statement of our operations during the

past year, in the varied departments which receive our constant care and attention. In manufactures and the mechanics arts, something new is annually looked for. The prolific genius of our countrymen rarely disappoints this expectation. Improved methods for accomplishing desired objects—perfection of finish—and improved beauty in design, characterize their annual offerings. In the department of agriculture, and the production of the prime necessities of life, much that is entirely new, cannot be expected. Increased production, the reclamation of sterile or exhausted soils, and the conversion of materials, heretofore deemed worthless, into profitable manures, have evidently marked its progress. Nevertheless there is a vast amount of labor required to be done, in bringing clearly to the comprehension of practical operators in the soil, the truths which science has already largely developed.

It has been charged, and there may be truth in the allegation, that our high seminaries of learning, fostered by the bounty of the State in no stinted measure, have too long neglected the great duty of bringing to the aid of practical operators in the indispensable arts of life, the important discoveries of science. Be this as it may, the spirit of the age is fast removing difficulties. The light of science begins to illuminate the humblest cottage; from whence it will be reflected with benefits innumerable, and a brilliancy unknown in the cloisters of monastic concealment.

It is not an uncommon occurrence, for those who are engaged in gratuitous labor for the public good, to be assailed and misrepresented. We ask our fellow citizens to examine closely before they decide. Every act of the Institute is open to examination.

JAMES TALLMADGE,	} Trustees.
JOHN CAMPBELL,	
JOHN D. WARD,	
LIV. LIVINGSTON,	
GEO. BACON,	
H. MEIGS,	
E. T. BACKHOUSE,	}

The following is the financial condition of the American Institute :

By the annual report of the Finance Committee, made to the American Institute April 12, 1849,

There were invested in stocks of the city of New-York, and money deposited in the Mechanics' Banking Association, at interest,.....	\$17,000 00
In the treasury,.....	1,039 53
	<hr/>
	\$18,039 52

The Receipts of the year have been,

From members,	\$1,812 00
“ Certificates of awards,	36 00
“ Sales of Transactions,	3 25
“ Managers of the 22nd annual Fair,	6,000 00
“ Treasurer of the State of New-York, under act of May 1841,.....	950 00
“ Rent of store No. 351 Broadway, to February 1, 1850,	1,333 32
“ Rent of room No. 333 Broadway, to February 1, 1850,.....	260 00
“ Interest on bonds, \$495 00	
“ Interest on money in bank,..... 120 83	
	<hr/>
“ Donation for library Messrs. French & Heiser, .	75 00
	<hr/>
	\$29,124 92

PAYMENTS.

Real Estate.

1849.

May 1. Paid on account of purchase of property No. 351 Broadway, (\$45,000,).....	\$15,000 00
23. Paid insurance on do,.....	90 00
Nov. 2. Paid interest on bond and mortgage, \$25,000, from May 1 to Nov. 1, 1849,.....	812 50
	<hr/>
Carried forward,	\$15,902 50

Brought forward,.....		\$15,902 50
Nov. 10. Paid mortgage of \$5,000.00, less difference of interest,.....	\$4,431 88	
Paid interest to November,....	152 04	
	<hr/>	4,583 92
12. Paid assessment,.....		8 24
Feb. 15. Paid taxes of 1849,		437 78
		<hr/>
		\$20,932 44

Repairs and Alterations No. 351 Broadway.

Carpenters' work,.....	\$267 68	
Masons' do	45 93	
Painting and signs,.....	296 00	
New roofing extension of store,.....	142 75	
Iron railing,.....	27 00	
Flagging side-walk and emptying sink,..	49 87	
Cleaning, whitewashing and glazing,.....	65 68	
	<hr/>	894 91

Monument to T. B. Wakeman.

Two lots in Greenwood Cemetery,.....	\$220 00	
Iron railing,.....	250 00	
Monument,	350 00	
	<hr/>	820 00

Miscellaneous Bills.

Salaries and Clerk hire.

Salary of superintending Agent, May to November,	\$500 00	
Salary of Recording Secretary to February 14, 1850,.....	286 24	
Salary of Clerk to December 13, 1849,..	525 00	
Salary of assistant Librarian,	228 25	
Services of Messenger,.....	98 25	
	<hr/>	
Carried forward,	\$1,637 74	\$22,647 35

Brought forward,	\$1,637 74	\$22,617 35
Expenses of Farmers' Club reporting 12 meetings,	\$30 00	
Papers for distribution,	27 00	
	<hr/>	57 00
Insurance on library,	24 00	
Books and periodicals for library,	135 25	
Newspaper subscriptions, &c.,	39 50	
Freight on Transactions, &c.,	18 51	
Expenses of removal,	53 93	
Directory,	2 25	
Rent of rooms No. 333 Broadway,	750 00	
Storage of library, &c.,	30 00	
Croton water and ice,	18 73	
Petty cash expenses—postages, subscription to small papers, advertising, cleaning, &c., &c.,	188 94	
	<hr/>	2,955 90
		<hr/>
		\$25,603 25
		<hr/>
Amount of Receipts,		u \$29,124 92
“ Payments,		25,603 25
		<hr/>
Balance in the treasury Feb. 15, 1850,.		\$3,521 67
		<hr/>

REPORT OF THE MANAGERS

OF THE

TWENTY-SECOND ANNUAL FAIR.

The Board of Managers of the twenty-second annual Fair of the American Institute, respectfully

REPORT :

That as usual, extensive public notice was given that the Fair would be open to visitors at Castle Garden, on Tuesday, the second day of October, but in consequence of the inclement weather the opening was postponed until the 3d.

The number of entries on the books were, in the Mechanical and Manufacturing Department 2,092, in the Agricultural and Horticultural Department 268, and at the Cattle Show 227, making a total of 2,587.

The American Congress of Fruit Growers, according to arrangements made the last year, met as before under the auspices of the American Institute, on the morning of the 2d of October. The assembly was called to order at 11 o'clock, by the Hon. M. P. Wilder, President. The meeting was held in the large front saloon at Castle Garden, which had been prepared by the Institute for their accommodation. The attendance was large, and their proceedings of great interest, a full report will be found among the transactions of this year.

Since the 21st Fair, the health of Mr. Bridgeman, an old and respected friend has been so impaired that he was unable to perform the arduous duties pertaining to the Agricultural and Horticultural Depart-

ent of our Fair and resigned. We can not in justice to him or to this board suffer his retirement, without expressing regret for the cause, and our thanks to him for unwearied attention and important services to the American Institute in the department to which he was attached.

That department has been under the charge of Mr. Peter B. Mead whose experience enabled him to carry out its objects efficiently, and with great taste and judgment. The report of Mr. Mead, is hereunto annexed.

The Cattle Show was held on the spacious premises on the Fifth Avenue, corner of Twenty-third street—permission was politely given by the corporation of the city to parade the horses on Madison Square opposite.

The number of entries were as follows :

Horses,.....	34	Swine,.....	55
Cattle,	138	Poultry,.....	48
Sheep,	83	Shepherd Dogs, ...	3
Mules,	4		

The Premiums awarded in this department were,

40 Silver Cups,	11 Vols. of Agricultural Books,
23 Silver Medals,	\$25 in cash.
4 Diplomas,	

By a rule adopted by the Managers, the premiums could be received in plate or cash.

The testing of plows and the plowing and spading matches, were held at Flushing L. I. in connexion with the Queens county Agricultural Society.

The Premium Committee, whose duties are of the most arduous and responsible kind, have faithfully and judiciously carried out the objects of the Institute. The chairman, Mr. Joseph Torrey, being always at at his post, and with his long experience, his services can hardly be dispensed with.

The following is a list of premiums as awarded :

53 Gold Medals.

1 Gold Medal "Tallmadge Premium."

247 Silver Medals.

64 Silver Cups.

421 Diplomas.

\$110 Cash and 24 certificates to apprentices and minors.

\$110 Cash and 6 Bronze Medals.

"The Van Schaick Premium."

\$25 Cash—premium for team of oxen.

152 Volumes of Agricultural Books.

The Committee estimates the above premiums to cost three thousand dollars.

The Finance Committee of the Fair, of which Mr. William Ebbitt is chairman, have discharged their duties with care and promptness.

The following is a condensed statement of the receipts and expenditures of the Fair ; for details reference may be had to the report of that committee.

RECEIPTS.

To cash received from sales of tickets at Castle Garden,	\$18,315 25
" at cattle show,.....	156 53
" rent of stands,.....	210 00
sales of lumber,.....	147 34
	<hr/>
	\$18,829 12
Less, counterfeit money,.....	\$12 00
Discount on uncurrent money,.....	46 89
	<hr/>
	58 89
Carried forward,.....	<hr/>
	\$18,770 23

Brought forward,..... \$18,770 23

EXPENDITURES.

By Printing and Publication Committee.

Printing circulars, invitations, tickets, blanks, handbills, badges, &c.,.....	\$414 46	
Printing addresses,.....	261 61	
Newspaper advertisements, bill- posting, stationery, &c.,.....	306 19	
	<hr/>	\$982 26

By Committee of Arrangements.

Superintendent, clerks, assistants and la- borers,.....	\$769 25	
Muslin for tables, flags, &c.,.....	75 51	
Glazing cases,.....	18 99	
Flag poles,.....	53 80	
Repairs of saloon after Fair, car- penter's work, cleaning and gas fixtures,.....	59 53	
Petty expenditures,.....	69 00	
	<hr/>	1,046 08

By Committee on Steam Power, &c.

Use of engine,.....	\$100 00	
Shafting, repairs of boiler, en- gineer, &c.,.....	360 99	
Assistants and laborers,.....	143 50	
Fuel,.....	115 43	
Water for engine,.....	10 00	
Painting roof of machine room, tin leaders, &c.,.....	56 94	
	<hr/>	784 86

By Committee on Light.

Gas light,.....	\$386 90
Camphene,.....	351 00
Oil and candles,.....	153 54

Carried forward,.....	\$891 44	\$2,813 20	\$18,770 23
-----------------------	----------	------------	-------------

Brought forward,.....	\$891 44	\$2,813 20	\$18,770 23
Loan of chandeliers,.....	50 00		
Lighting,.....	52 00		
Pipes and fixtures,.....	171 21		
	<hr/>	1,164 65	

By Finance Committee.

Ticket sellers and counter,.....	\$163 00		
Check book, stationery and cash boxes,.....	17 69		
	<hr/>	180 69	

By Ticket Committee.

Ticket receivers and counter,....	\$157 00		
Stamping tickets,.....	10 50		
	<hr/>	167 50	

By Police Committee.

Police, day, evening and night watch,....	404 76		
---	--------	--	--

By Agricultural and Horticultural Committee.

Carpenter's work, erecting sheds,.	\$323 69		
Clerks, laborers, box wood, use of crockery, &c.,.....	492 19		
	<hr/>	815 88	

By Refreshment Committee.

Dinners for managers while detailed on duty, and for guests from a distance,.	\$525 00		
Refreshments, &c., for bands of music, whose services were gra- tuitous, &c.,.....	184 71		
	<hr/>	709 71	

Miscellaneous Bills.

Rent of Castle Garden 21 days, at \$75 per day,.....	1,575 00		
Lumber and carpenter's work, fitting up saloon,.....	\$374 11		

Carried forward,.....	\$374 11	\$7,831 39	\$18,770 23
[Assembly, No. 199.]	2		

Brought forward,.....	\$374 11	\$7,831 39	\$18,770 23
Covering bridge, building gas house and fitting up room for Congress of Fruit Growers,.....	223 00		
	<hr/>	597 11	
Wire for pin machine,.....		25 00	
Band, &c., for N. Y. Volunteers,.....		60 50	
Rent of Tabernacle, and music for anniversary address,.....		115 00	
Expenses of Orator,.....		38 00	
Fireworks,.....		190 00	
Chambermaid,.....		5 00	

By Premium Committee, (in part.)

Gold and silver for medals,.....	\$1,177 50		
Stamping and cutting medals,...	204 37		
Silver cups, &c.,.....	341 25		
Medal cases,.....	100 00		
Printing diplomas,.....	60 75		
Filling up ".....	21 80		
Agricultural works,.....	130 72		
Postage, notifying judges,.....	12 22		
Cash instead of cups and medals,.	214 00		
" minors' premiums,.....	110 00		
" Van Schaick premium,.....	110 00		
	<hr/>	2,482 61	
Expenses as far as paid,.....		<hr/>	11,344 61

Which being deducted from the receipts leaves,.... \$7,425 62

Of which has been into the treasury of the American

Institute, Nov. 9, 1849,..... 6,000 00

Leaving a balance of,..... \$1,425 62
in the Mechanic's Banking Association, to the credit of the Board of
Managers of the 22nd Annual Fair, to pay some claims for premiums,
printing, &c., not yet completed when settled the committee will
report to the Institute.

The board would state that, with great regret, the resignation of Mr. James Van Norden, the late chairman of the Finance Committee, was accepted; his unremitting and faithful attention to his duties require and receive the thanks of this board

The expenses of the Fair for light, labor, rent, refreshments, &c., have been greater than in previous years, as at no time before has the Fair been kept open so long. In consequence of the rain and inclement weather during the first weeks of the Fair, it was deemed proper to continue it open until near the end of the fourth week—heretofore it has closed within three weeks.

The receipts have been larger than at any previous Fair, and is a strong evidence that the American Institute, its objects and views, are increasing in favor with the public. Let its principles continue to be carried out honestly, fearlessly and impartially, and the community will be with and sustain us.

Before closing this report, the Managers feel bound to express their thanks to their friends of the Army and Navy, from whom the Institute has ever received tokens of approbation, kindness and attention. We were occasionally furnished by them with excellent bands of music, which contributed largely to the enjoyment of the scene at Castle Garden.

During the Fair the following addresses were delivered, and have been printed for distribution :

Opening address by the Hon. Henry Meigs.

Address by James Madison Crane, Esq.

Address on the Patent Laws, by George Gifford, Esq

Address on the Philosophy of Manufactures, by Thomas Antisell, M. D.

Address on the Progress and Improvements that have been made in the Mechanic Arts, by Rev. John Al Burtis.

Anniversary address, by Hon. Levi Woodbury, of New Hampshire.

Closing address, by the Hon. James Tallmadge, the President of the Institute.

ROBERT LOVETT, *Chairman.*

New-York, Feb. 14, 1850.



SHORT HORNED BULL "LAMARTINE"

Lamartine took the 1st Premium at the Twenty-Second Annual Fair of the American Institute, October, 1849.

LIST OF PREMIUMS

AWARDED BY THE MANAGERS OF THE TWENTY-SECOND
ANNUAL FAIR OF THE AMERICAN INSTITUTE, OCTOBER
1849.

AGRICULTURAL AND HORTICULTURAL DEPARTMENT.

THOROUGH BRED BLOOD HORSES.

Henry Booth, Morrisania, N. Y., for the best thorough bred blood stallion, "Trustee." Silver Cup, \$15.

Lewis A. Sayre, New-York, for the best thorough bred mare, "Young Lady Lightfoot." Silver Cup, \$15.

Lewis A. Sayre, New-York, for a yearling filly, "Belle." Diploma.

MATCHED, FARM AND SINGLE HORSES.

Jackson Nichols, Flushing, L. I., for the best brood mare. Silver Cup, \$10.

W. H. Morris, Morrisania, N. Y., for the second best brood mare. Silver Medal.

Philip Hornbeck, Ulster Co., N. Y., for the best two year old Mambrino colt, "Tho's Jefferson." Silver Cup, \$8.

Eleazar Parmly, New-York, for the best pair of matched horses. Silver Cup, \$10.

Bathgate Brothers, Morrisania, N. Y., for the best pair of farm horses. Silver Cup, \$10.

W. H. Van Cott, Harlem, N. Y., for the best single road horse. Silver Medal.

NATIVE STOCK.

Thomas Bell, Morrisania, N. Y., for the best cow. Silver Cup, \$10.

James Patton, Newburgh, N. Y., for the best heifer calf. Silver Medal.

FULL BRED STOCK.

Durhams.

Lewis G. Morris, Fordham, N. Y., for the best short horned bull, "Lamartine." Silver Cup, \$15.

Hugh Nicholson, Tariffville, Conn., for a short horned bull. Silver Medal.

Lewis G. Morris, Fordham, N. Y., for the best short horned bull calf, "Logan," Silver Medal.

Bathgate Brothers, Morrisania, N. Y., for the best short horned cow Silver Cup, \$15.

Bathgate Brothers, Morrisania, N. Y., for the best short horned heifer, 2 years old. Silver Cup, \$8.

Lewis G. Morris, Fordham, N. Y., for the best short horned heifer calf. Silver Medal.

Devons.

S. & L. Hurlbut, Winchester, Conn., for the best Devon bull, "Bloomfield." Silver Cup, \$15.

Jacob N. Blakeslee, Watertown, Conn., for the second best Devon bull. Silver Medal.

Hiram Whitlock North Salem, N. Y., for the best Devon bull calf. Silver Medal.

S. & L. Hurlbut, Winchester, Conn., for the best Devon cow. Silver Cup, \$15.

S. & L. Hurlbut, Winchester, Conn., for the best Devon yearling heifer. Silver Cup, \$8.

S. & L. Hurlbut, Winchester, Conn., for the best Devon heifer calf. Silver Medal.

Hereford.

Isaac Sherman, Milton, Ulster Co., N. Y., for the best Hereford yearling bull. Silver Cup, \$8.

Ayrshire.

Ezra Nyc, Clinton-Place, N. Y., for the best Ayrshire bull. Silver Cup, \$15.

Morgan G. Colt, Paterson, N. J., for the best Ayrshire cow. Silver Cup, \$15.

William Watson, Westchester Co., N. Y., for the best Ayrshire heifer. Silver Cup, \$8.

Morgan G. Colt, Paterson, N. J., for the best Ayrshire yearling heifer. Silver Medal.

Morgan G. Colt, Paterson, N. J., for the best Ayrshire yearling bull. Silver Cup, \$8.

Morgan G. Colt, Paterson, N. J., for the best Ayrshire bull calf. Silver Medal.

Alderney.

Roswell L. Colt, Paterson, N. J., for the best Alderney cow. Silver Cup, \$15.

Roswell L. Colt, Paterson, N. J., for the best Alderney heifer. Silver Cup, \$8.

Roswell L. Colt, Paterson, N. J., for the best Alderney heifer calf. Silver Medal.

Roswell L. Colt, Paterson, N. J., for the best Alderney bull. Silver Cup, \$15.

Roswell L. Colt, Paterson, N. J., for the best Alderney bull calf. Silver Medal.

GRADE STOCK.

George A. Prevost, Pelham, Westchester Co., N. Y., for the best grade bull, "Prince Albert," 3 years old. Silver Cup, \$10.

Isaac P. Smith, Nyack, Rockland Co., N. Y., for the best yearling bull. Silver Medal.

Jackson Nicholas, Flushing, L. I., for the best grade bull calf. Silver Medal.

James Bathgate, Fordham, Westchester Co., N. Y., for the best grade cow, "Cora." Silver Cup, \$15.

Cornelius T. Smith, Nyack, Rockland Co., N. Y., for the best grade heifer, "Lizetta." Silver Cup, \$8.

James Angus, West Farms, Westchester Co., N. Y., for the best grade heifer calf, "Lady Taylor." Silver Medal.

MILKING COWS.

Lewis G. Morris, Fordham, Westchester county, N. Y., for the best cow in milk. Silver cup, \$8.

Thomas Bell, Morrisania, Westchester county, N. Y., for the second best cow in milk. Silver medal.

Lewis G. Morris, Fordham, Westchester county, N. Y., for the third best cow in milk. Trans. N. Y. State Ag. Soc.

WORKING OXEN.

John Fitch, Warden Alms House, New-York, for the best yoke of working oxen, 8 years old. Silver cup, \$15.

S. & L. Hurlbut, Winchester Conn., for the second best yoke of working oxen, 6 years old. Silver medal.

John B. Gedney, White Plains, Westchester county, N. Y., for the best team of working oxen, 5 yoke, \$25

FAT CATTLE.

G. H. Townsend, New-Haven, Conn., for the best pair of fat cattle. Silver cup, \$20.

Lewis G. Collins, Washington, Dutchess county, N. Y., for the best fat ox. Silver cup, \$8.

Bathgate Bros., Morrisania, Westchester county, N. Y., for the best fat heifer. Silver cup, \$8.

FINE WOOL SHEEP.

Seely C. Roe, Chester, Orange county, N. Y., for the best merino buck, "Bonaparte." Silver cup, \$8.

Cullen Capehart, Merry Hills, N. C., for the second best merino buck, "Vermont Chief." Diploma.

Geo. W. Capehart, Merry Hills, N. C., for the best pen of three merino ewes. Silver cup, \$8.

Lewis G. Collins, Washington, Dutchess county, N. Y. for the best pen of six merino lambs. Silver medal.

LONG WOOL SHEEP.

Elias L. Barlow, LaGrange, Dutchess county N. Y., for the best long wool buck. Silver cup, \$8.

Edward Hallock, Milton, Ulster county, N. Y., for the best pen of three long wool ewes. Silver cup, \$8.



SHORT HORNED BULL, CALF, "LOGAN."

Lamarine took the 1st Premium at the Twenty-Second Annual Fair of the American Institute, 1879.

Elias L. Barlow, LaGrange, Dutchess county, N. Y., for the best pen of three long wool lambs. Silver medal.

Elias L. Barlow, LaGrange, Dutchess county, N. Y., for the best south down buck. Silver cup, \$8.

Edward Wait, Montgomery, Orange county, N. Y., for the best pen of three south down ewes. Silver cup, \$8.

Daniel B. Haight, Washington, Dutchess county, N. Y., for the best pen of three south-down lambs. Silver medal.

FAT SHEEP.

John Dick, White Plains, Westchester county, N. Y., for the best fat sheep, (long wool.) Silver cup, \$8.

Bathgate Bros., Morrisania, Westchester county, N. Y., for the best fat lamb, (middle wool.) Silver cup, \$8.

SHEPHERD DOG.

Bathgate Bros., Morrisania, Westchester county, N. Y., for the best shepherd dog. Farmers' Library.

SWINE.

W. J. & S. Halden, 9th Avenue and 63d-street, for the best boar, "grass and Lincolnshire breed." Silver cup, \$8.

Samuel Love, 53d-street, between 6th and 7th Avenues, for the second best boar, "Berkshire." Diploma.

Samuel Love, 53d-street, between 6th and 7th Avenues, for the best sow, "Berkshire." Silver cup, \$8.

William Watson, Westchester county, N. Y., for the second best sow, "Berkshire." Diploma.

William Bolmer, Westchester county, N. Y., for the best shote. Silver medal.

Levi W. Trall, Torrington, Conn., for the best lot of pigs. Silver cup, \$8.

William Watson, Westchester county, N. Y., for a boar, "improved Berkshire." Silver medal.

William Stickney, Boston, Mass., for a Suffolk shote. Diploma.

POULTRY

R. L. Colt, Paterson, N. J., for the best pair of turkeys. American Poulterers' Companion.

R. L. Colt, Paterson, N. J., for the best pair of Bremen geese. American Poulterers' Companion.

R. L. Colt, Paterson, N. J., for the best pair of Muscovy ducks. American Poulterers' Companion.

Henry A. Field, Poughkeepsie, Dutchess county, N. Y., for the best pair of Dorking fowls. American Poultry Book.

R. L. Colt, Paterson, N. J., for the best pair of common ducks. American Poulterers' Companion.

R. L. Colt, Paterson, N. J., for the best pair of capons. American Poultry Book.

Wm. Moore, 46th-street, Bloomingdale road, for the best pair of Poland fowls. American Poultry Book.

Henry A. Field, Poughkeepsie, Dutchess county, N. Y., for Dorking chickens. Trans. Am. Ins.

Wm. Moore, 46th-street and Bloomingdale road, for Java fowls. Trans. Am. Ins.

FIELD CROPS.

S. B. Townsend, Astoria, L. I., for a field of corn. Silver cup, \$8.

AGRICULTURAL PRODUCTIONS.

Roswell L. Colt, Paterson, N. J., for the best varieties of Indian corn. Silver cup, \$8.

C. T. Smith, Nyack, N. Y., for the best white corn. Washington's Agricultural Correspondence.

Jacob A. Sharp, Orange, N. J., for the best yellow corn. Colman's European Agriculture.

S. W. Jewett, Weybridge, Vt., for superior corn. Washington's Letters on Agriculture.

E. H. Kimball, Flatlands, L. I., for the best wheat. Silver cup, \$8.

Henry Robinson, Newburgh, N. Y., for extra fine wheat. Washington's Agricultural Correspondence.

George Nesbitt, Hobart, Delaware county, N. Y., Alexander Smith, agent, 388 Broadway, for a sample of superior spring wheat. Trans. N. Y. State Ag. Soc.

E. H. Kimball, Flatlands, L. I., for a sample of superior red wheat. Trans. Am. Ins.

James Weeden, Newtown, L. I., for a sample of good Mediterranean wheat. Trans. Am. Ins.

Robert L. Pell, Ulster county, N. Y., for the best rye. Silver medal.

Henry A. Field, Poughkeepsie, N. Y., for fine rye. Washington's Letters on Agriculture.

George Nesbitt, Hobart, Delaware county, N. Y., Alexander Smith, agent, 388 Broadway, for the best oats. Silver medal.

Robert L. Pell, Ulster county, N. Y., for extra fine oats. Washington's Agricultural Correspondence.

James Weeden, Newtown, L. I., for the best buckwheat. Colman's European Agriculture.

Robert L. Pell, Ulster county, N. Y., for a sample of fine buckwheat. Washington's Agricultural Correspondence.

James Weeden, Newtown, L. I., for the best sample of Egyptian corn. Allen's American Agriculture.

S. B. Townsend Astoria, L. I., for a sample of good corn. Trans. Am. Ins.

Jacob P. Giraud, Jr., Bergen, N. J., for varieties of fine corn. Trans. Am. Ins.

FLOUR AND MEAL.

Hecker & Brother, Croton Mills, New-York, for the best wheat flour. Silver medal.

A. Harmon, South Chili, N. Y., N. H. Wolfe, agent, 17 South-street, for superior wheat flour. Colman's European Agriculture.

J. Lathrop, Leroy-street, Clark & Coleman, agents, 18 South-street, for extra fine wheat flour. Gardner's Farmer's Dictionary.

Bennett & Varnum, Saratoga county, N. Y., for the best rye flour. Silver medal.

Henry A. Field, Poughkeepsie, N. Y., for superior rye flour. Gardner's Farmer's Dictionary.

Franks & Stewart, Changewater, N. J., Cornelius Stewart, agent, 64 Dey-street, for the best kiln-dried meal. Silver medal.

Hutchinson & Floyd, Cleveland, Ohio, J. M. Hoyt & Sons, agents, 176 Washington-street, for superior steam-dried meal, (by Staffords' steam drier.) Silver medal.

Hecker & Brothers, Croton Mills, N. Y., for superior farina. Silver medal.

HOPS.

L. S. Mason, Otsego, N. Y., P. Harmon, agent, 56, Dey-street, for the best hops. Colman's European Agriculture.

S. White, Madison county, N. Y., G. W. Ryckman, Jr., agent, 41 Water street, for a bale of superior hops. Vol. on hops.

PRODUCTS OF THE DAIRY.

Butter.

Thomas Helmes, Goshen, Orange county, N. Y., for the best specimen of butter. Silver cup, \$8.

John L'Hommedieu, Cortlandt village, Cortlandt county, N. Y., for very excellent butter. Silver medal.

Daniel Jessup, Florida, Orange county, N. Y., for a specimen of fine butter. Farmers' Library.

James Lewis, Goshen, Orange county, N. Y., for a specimen of good butter. Trans. Am. Ins.

Cheese.

J. Ellison, Herkimer county, N. Y., for the best specimen of American dairy cheese. Silver cup, \$8.

P. Carter, Lysander, Onondaga county, N. Y., for excellent flavored American dairy cheese. Silver medal.

J. Hamlin, 14 Front-street, for fine flavored American dairy cheese. Colman's European Agriculture.

W. W. Dowd, Ashtabula county, Ohio, for good flavored American cheese. Washington's Agricultural Correspondence.

George Hezlep, Gustavus, Trumbull county, Ohio, Phillips & Aborn, agents, 108 Broad-street, for the best imitation English dairy cheese. Washington's Letters on Agriculture.

Luther Eames, 88 Hicks-street, Brooklyn, L. I., for fine imitation English dairy cheese. Trans. N. Y. State Ag. Soc.

J. E. Hoyt, Colbrook, Conn., J. Clancy, agent, 14 Front-street, for good imitation English dairy cheese. Trans. Am. Ins.

A. E. Austin, Austinburgh, Ashtabula county, Ohio, for a mammoth cheese of good quality, 1,750 lbs Silver cup, \$8.

WINE.

Nicholas Longworth, Cincinnati, Ohio, for the best wine, "sparkling Catawba." Gold medal.

Mrs. Grover, New-Brunswick, N. J., for excellent tomato and wild cherry wine. Diploma.

Thompson C. Munn, Orange, N. J., for excellent cider. Diploma.

FRUIT.

Parsons & Co., Flushing, L. I., for the choicest and greatest variety of fruit. Silver cup, \$10.

C. H. Earle, Newark, N. J., for the greatest number of choice varieties of apples. Silver cup, \$8.

Wilson, Thorburn & Teller, Albany, N. Y., for a very fine assortment of apples. 6 Nos. Hovey's Fruits.

B. Mattison & Brothers, North Bennington, Vt., for several choice varieties of apples. Downing's Horticulturist.

D. F. Goodrich, Stockbridge, Mass., for a good assortment of apples. Bridgeman's Gardener's Assistant.

James O'Donohue, Middle Village, L. I., for the best variety of winter apples. Trans. Am. Ins.

W. H. Hughes, Matawan Point, N. J., for the best native grapes. Silver medal.

S. T. Jones, New-Brighton, S. I., for very fine varieties of native grapes. 4 Nos. Hovey's Fruits.

R. T. Underhill, Croton Point, N. Y., for choice native grapes. Downing's Fruit Trees.

W. A. Underhill, Croton Point, N. Y., for choice Isabella grapes. Hoare on the Vine.

P. S. Van Rensselaer, Clinton Point, Dutchess county, N. Y., Edward Downing, Gardener, for the best foreign grapes. Silver medal.

Nathan Durfee, Fall River, Mass., for very fine varieties of foreign grapes. Four Nos. of Hovey's Fruits.

Peck & Roe, Flushing, L. I., for choice foreign grapes. Bridgeman's Gardener's Assistant.

Roswell L. Colt, Paterson, N. J., for good varieties of foreign grapes. Hoare on the Vine.

John Burrow, Fishkill, N. Y., for the best freestone peaches, (seedlings.) Downing's Fruit Trees.

D. Fairbank, 237 West 14th-street, for the best clingstone peaches, (seedlings.) Bridgeman's Gardener's Assistant.

M. C. Morgan, Jersey city, for the best nectarines, (seedlings.) Trans. Am. Ins.

M. P. Wilder, Dorchester, Mass., for the choicest variety of pears. Silver cup.

Hovey & Co., Cambridge, Mass., for a large variety of choice pears. Silver medal.

Wilson, Thorburn & Teller, Albany, N. Y., for a fine assortment of pears. Downing's Fruit Trees.

W. G. Verplanck, Geneva, N. Y., for a superb display of butter-pears. Bridgeman's Gardener's Assistant.

William Wright, Newark, N. J., for the best table pears. Cole's Fruit Book.

Wilson, Thorburn & Teller, Albany, N. Y., for the best dish of plums. Downing's Fruit Trees.

W. G. Verplanck, Geneva, N. Y., for the best assortment of quinces. Bridgeman's Gardener's Assistant.

John Tonnellé, Bergen, N. J., for excellent quinces. Cole's Fruit Book.

John Eltringham, Jersey city, for a good sample of quinces. Thomas' Fruit Culturist.

W. J. & E. Smith, Geneva, N. Y., for a superb display of Verga-lieu pears. Farmer's Library.

C. H. Raberg, Totawa, N. J., for a large dish of superior Duchesse d'Angoulême pears. Trans. N. Y. State Ag. Soc.

William Wright, Newark, N. J., for very fine Marie Louise Bonne de Jersey pears. Hoare on the Vine.

Tunis G. Bergen, Narrows, L. I., for a pear of a very fine quality, (represented as a seedling.) Trans. Am. Ins.

Joseph Briell, Newark, N. J., for a very fine Duchesse d'Angoulême pears. Trans. N. Y. State Ag. Soc.

John Tonnellé, Bergen, N. J., for excellent Duchesse d'Angoulême pears. Trans. Am. Ins.

Oliver Slate, Jr., Throg's Neck, N. Y., for very large Hamburg grapes. Thomas' Fruit Book.

John E. Dodge, Dodgeville, Mass., for a very fine display of Hamburg grapes. Hovey's Magazine of Horticulture.

A. P. Cumings, Williamsburgh, L. I., for four varieties of quinces and several varieties of foreign and native grapes. *Hovey's Magazine of Horticulture*.

FLOWERS.

Charles More 98th-street, 3d Avenue, for the 20 best varieties of named roses. Silver medal.

Mateo Donadi, 44th-street, Bloomingdale Road, for a choice display of named roses. *Browne's Trees of America*.

J. M. Thorburn & Co., 15 John-street, for the 24 best varieties of named dahlias. Silver medal.

Thomas Dunlap, 635 Broadway, for 24 beautiful blooms of dahlias. *Browne's Trees of America*.

Mateo Donadi, 44th-street, Bloomingdale Road, for 24 choice blooms of dahlias. *Downing's Landscape Gardening*.

William Beekman, 51st-street, for 24 fine blooms of dahlias. *The American Flora*.

J. M. Thorburn & Co., 15 John-street, for the largest and best display of dahlias. Silver cup, \$10.

William Beekman, 51st-street, for a large and superb display of dahlias. Silver cup, \$8.

Bernard Kelly, gardener to E. W. Fiske, Gowanus, L. I., for a large and beautiful display of dahlias, frequently renewed. Silver medal.

Mateo Donadi, 44th-street, Bloomingdale Road, for a superb display of dahlias, frequently renewed. Silver medal.

Charles Moré, 98th-street, 3d Avenue, for a display of choice dahlias, frequently renewed. *Hovey's Magazine of Horticulture*.

J. E. Rauch, Gowanus, L. I., for a very fine display of dahlias, frequently renewed. *Parsons' Rose Manual*.

Thomas Hogg & Sons, Yorkville, N. Y., for a display of fine dahlias, frequently renewed. *Mrs. Loudon's Flower Garden*.

Daniel Boll, 50th-street, Bloomingdale Road, for a good display of dahlias, frequently renewed. *Bridgeman's Gardener's Assistant*.

Mateo Donadi, 44th-street, Bloomingdale Road, for the best and greatest variety of roses and cut flowers. *Downing's Horticulturist*.

Bernard Kelly, Gowanus, L. I., for a superb display of roses and cut flowers. *American Flora*.

Charles Moré, 98th-street, for a choice display of roses and cut flowers. Parsons' Rose Manual.

Mrs. A. Henderson, Castle Point, Hoboken, N. J., for a fine display of roses and cut flowers. Prince's Manual of Roses.

Mrs. A. Henderson, Castle Point, Hoboken, N. J., for a splendid parlour stand of bouquets. Silver medal.

Bernard Kelly, Gowanus, L. I., for a superb display of bouquets. Downing's Cottage Residences.

Mrs. A. A. Smith, Sidney Place, Brooklyn, L. I., for a choice display of bouquets. Lang's Highland Cottages.

Edward Schickler, 50th-street, for the most beautiful bouquet. Hovey's Magazine of Horticulture.

Mrs. A. Henderson, Castle Point, Hoboken, N. J., for several large and beautiful bouquets. American Flora.

J. & P. Henderson, Jersey City, N. J., for several very fine bouquets. American Flower Garden Directory.

Mrs. Penniman, 33 Sidney Place, Brooklyn, L. I., for several choice bouquets. Prince's Manual of Roses.

Mrs. A. Henderson, Castle Point, Hoboken, N. J., for several splendid and tastefully arranged flower baskets. Silver medal.

Alfred Bridgeman, Broadway, cor. 18th-street, for a beautiful basket of flowers. Parsons' Rose Manual.

Mrs. A. Henderson, Castle Point, Hoboken, N. J., for the best basket of wild flowers, most tastefully arranged, and frequently renewed. American Flower Garden Directory.

Hovey & Co., Cambridge, Mass., for a choice assortment of dahlias. Trans. Am. Ins.

A. Henderson, gardener to E. A. Stevens, Hoboken, N. J., for a beautiful display of rustic work. Hovey's Magazine of Horticulture.

A. Henderson, Hoboken, N. J., for several varieties of choice pot plants. Trans. Am. Ins.

William Russell, Brooklyn, L. I., for a display of very fine American rhododendrons. Trans. Am. Ins.

Stephen Pettit, 39 Hicks-street, Brooklyn, L. I., for a large and well grown cactus. Bridgeman's Florist's Guide.

Charles Moré, 98th-street, for several fine specimens of *metrosideros semperflorens*, in flower. Trans. Am. Ins.

Mrs. A. Henderson, Hoboken, N. J., for several large and beautiful bouquets of wild flowers. Trans. Am. Ins.

Miss Sarah S. King, Brooklyn, L. I., for a beautiful vase of artificial flowers. Bridgeman's Florist's Guide.

Mrs. R. J. Perkins, Hudson, N. Y., for three stands of artificial flowers. Bridgeman's Florist's Guide.

Miss A. Coe, Newark, N. J., for a pretty sign of artificial flowers, "The Fair." Bridgeman's Florist's Guide.

Warren Rowell, 149 Madison-street, for a large display of American pitcher plants. Trans. Am. Ins.

Mrs. Josephine Dayton, Brooklyn, L. I., for several pretty bouquets. Bridgeman's Florist's Guide.

Thomas Hogg & Sons, Yorkville, N. Y., for several good bouquets. Bridgeman's Florist's Guide.

J. & C. Love, Harsimus, N. J., for several varieties of choice dahlias. Bridgeman's Florist's Guide.

John Eltringham, Jersey City, N. J., for an assortment of good dahlias. Bridgeman's Florist's Guide.

H. M. Soule, Harsimus, N. J., for a splendid show of souvenir de la malmaison roses. Bridgeman's Florist's Guide.

Mrs. A. Henderson, Hoboken, N. J., for a most magnificent and elaborate floral design. Silver cup, \$15.

A. Henderson, Hoboken, N. J., for a splendid design of a temple to Washington. Silver cup, \$10.

Bernard Kelly, gardener to E. W. Fiske, Gowanus, L. I., for a most beautiful pyramidal design. Silver cup, \$8.

Thomas McMinn, gardener to Henry Wells, Jamaica, L. I., for a very pretty ornamental design. Mrs. Loudon's Flower Garden.

A. Henderson, Hoboken, N. J., for a beautiful design of gateway. American Flora.

A. Henderson, Hoboken, N. J., for a beautiful design for a grapery. Hovey's Magazine of Horticulture.

Bernard Kelly, Gowanus, L. I., for two magnificent stars of cut roses. Diploma.

VEGETABLES.

E. H. Kimball, Flatlands, L. I., for the choicest assortment of culinary vegetables. Silver cup, \$8.

[Assembly, No. 199.]

Roswell L. Colt, Paterson, N. J., for the best and greatest variety of vegetable roots for cattle. Silver cup, \$8.

John Brill, Harsimus, N. J., for the best long blood beets. Bridgeman's Gardener's Assistant.

R. K. Delafield, Staten Island, William Reed, gardener, for the best turnip beets. American Agriculturist.

W. Hendrickson, Raritan, N. J., for the best mangel-wurtzel beets. Am. Agriculturist.

John Fitch, Blackwell's Island, for the best sugar beets. N. Y. Farm. & Mec.

Bernard Kelly, gardener to E. W. Fiske, Gowanus, L. I. for the best heads of Cape Broccoli. Bridgeman's Gardener's Assistant.

Archibald Henderson, Hoboken, N. J., for the best heads of drum head cabbage. Trans. N. Y. State Ag. Soc.

A. Henderson, Hoboken, N. J., for the best heads of Savoy cabbage. Trans. Am. Ins.

Samuel Halden, Bloomingdale, N. Y., for the best carrots for the table. N. Y. Far. and Mec.

Bernard Kelly, Gowanus, L. I., B. Kelly, gardener, for the best carrots for cattle. Am. Agriculturist.

A. Henderson, Hoboken, N. J., for the best roots of white solid celery. Trans. N. Y. State Ag. Soc.

Bernard Kelly, Gowanus, L. I., for the best 12 roots of celery. Trans. Am. Ins.

Samuel Ruth, cor. 64th-street and 3d Avenue, for the best egg plants. Vol. of the Cultivator.

Bernard Kelly, Gowanus, L. I., for the best of white onions. Bridgeman's Gardener's Assistant.

Bernard Kelly, Gowanus, L. I., for the best of yellow onions. N. Y. Far. and Mec.

Bernard Kelly, Gowanus, L. I., for the best of red onions. Am. Agriculturist.

Bernard Kelly, Gowanus, L. I. for the best parsnips for the table. Trans. Am. Ins.

A. Henderson, Hoboken, N. J., for the best parsnips for cattle. Trans. N. Y. State Ag. Soc.

M. R. McGarrity, West Hoboken, N. J., for the best of seedling potatoes. The Farmer's Library.

Francis Briell, Astoria, L. I., for the best potatoes for the table. The Monthly Journal of Agriculture.

R. K. Delafield, S. I., William Reed, gardener, for superior potatoes. Bridgeman's Gardener's Assistant.

George Weatherspoon, New-Brighton, L. I., J. Turner, gardener, for the best potatoes for cattle. Vol. of the Cultivator

J. D. Arthur, Orange, N. J., for the best cheese pumpkins. N. Y. Far. and Mec.

R. L. Colt, Paterson, N. J., for the best cattle pumpkins. Am. Agriculturist.

Robert Selkirk, Bethlehem, Albany county, N. Y., for the best and largest pumpkins. Bridgeman's Gardener's Assistant.

Henry Brand, Communipaw, N. J., for the best roots of salsify. Trans. Am. Ins.

Samuel Halden, Bloomingdale, for the best squashes. Am. Agriculturist.

James McFarlane, English Neighborhood, N. J., for the best and largest squash. Vol. of the Cultivator.

D. F. Sargent, Washington Market, for the best tomatoes. Trans. Am. Ins.

Bernard Kelly, Gowanus, L. I., for the best white turnips. Bridgeman's Gardener's Assistant.

R. K. Delafield, Staten Island, for the best yellow turnips. N. Y. Far. and Mec.

J. E. Body, Staten Island, for the best Russia turnips. Vol of the Cultivator.

Jacob P. Giraud, Jr., Bergen, N. J., for two crops of potatoes raised on the same ground. Trans. N. Y. State Ag. Soc.

R. K. Delafield, Staten Island, for choice squashes, (vegetable marrow.) Trans. Am. Ins.

A. Henderson, Hoboken, N. J., for several varieties of vegetable roots for cattle. Trans. Am. Ins.

Francis Briell, Astoria, L. I., for Porter squashes and a French pumpkin. Trans. N. Y. State Ag. Soc.

D. F. Sargent, Washington Market, for choice peppers. Trans. Am. Ins.

Andrew Harrison, Bergen Hill, N. J., for extra large pumpkins. Trans. N. Y. State Ag. Soc.

S. W. Carhart, Keyport, N. J., for an extra large pumpkin and other vegetables. Trans. Am. Ins.

John Birdsall, Tarrytown, N. Y. for fine pumpkins. Trans. N. Y. State Ag. Soc.

J. E. Body, Staten Island, for six varieties of culinary vegetables. Trans. Am. Ins.

M. R. McGarrity, West Hoboken, N. J., for superior pumpkins. Trans. N. Y. State Ag. Soc.

MISCELLANEOUS ARTICLES.

H. H. Barry, Schoharie county, N. Y., for a superior specimen of honey. Trans. N. Y. State Ag. Soc.

Haines & Kinsey, 212 West-street, for the best can of mustard. Trans. Am. Ins.

T. Glover, Fishkill Landing, N. Y., for superior specimens of artificial fruit. Downing's Landscape Gardening.

PICKLES.

Remington & Co., 191 and 193 Chrystie-street, for the best assortment of pickles. Trans. N. Y. State Ag. Soc.

AGRICULTURAL IMPLEMENTS.

N. B. Starbuck & Co., Troy, N. Y., for superior workmanship on a plough. Diploma.

John Rich & Co., Troy, N. Y., for cast iron beam ploughs, for their cheap and efficient method of construction. Silver medal.

Austen G. Fitch, Worcester, Mass., for Bartlett's patent double ploughs, an improvement in the method of combining gangs of ploughs. Diploma.

A. B. Allen & Co., 189 Water-street, for a universal cultivator. Diploma.

R. Creswell, Scotland, Franklin county, Pa., John Mayher & Co., agents, 195 Front-street, for a two horse curved shovel cultivator and corn planting machine. Silver medal.

J. Pierson, Wilmington, Del., John Mayher & Co., agents, 195 Front-street, for a patent wheat drill. Silver medal.

H. L. Emery, Albany, N. Y., for a corn and seed planter, or drill barrow. Silver medal.

C. H. McCormick, Chicago, Ill., for the Virginia grain reaper, a valuable machine. Gold medal.

D. Harkness, Maine, S. C. Hills & Co., agents, 43 Fulton-street, for a patent grain rake. (Silver medal having been before awarded.) Diploma.

Samuel Wilkinson, Rockville, Orange county, N. Y., A. B. Allen & Co., agents, 189 Water-street, for the best grain cradles. Silver medal.

Lewis H. Parson, South Middletown, Orange county, N. Y., for the second best grain cradle. Diploma.

H. L. Emery, Albany, N. Y., John Mayher & Co., agents, 195 Front-street, for an improved overshot threshing machine and separator. Silver medal.

Ruggles, Nourse & Mason, Worcester, Mass., for the best revolving cylinder knife corn stalk and straw cutter. (Silver medal having been before awarded.) Diploma.

H. W. Bertholf, Warwick, Orange county, N. Y., for a corn stalk cutter. Diploma.

William Hovey, Worcester, Mass., for a hay, straw and corn stalk cutter. Diploma.

H. L. Emery, Albany, N. Y., John Mayher & Co., agents, 195 Front-street, for hay, straw and stalk cutter, with curved knives. Diploma.

J. C. Rich, Penfield, N. Y., for a reciprocating knife corn stalk cutter. Diploma.

H. L. Emery, Albany, John Mayher & Co., agents, 195 Front-street, New-York, for the best churn. Silver medal.

William J. Buck, 209 Pearl-street, for a cheese press of new construction. Diploma.

Lorenzo Smith, Easton, Mass., for a vertical gate of new and novel construction. Silver medal.

J. L. Gatchel, Elkton, Maryland, H. L. Emery, agent, Albany, N. Y., for hydraulic rams. (Silver medal having been before awarded.) Diploma.

A. B. Allen & Co., 189 Water-street, for the best reciprocating meat cutter and sausage stuffing machine. Diploma.

John Mayher & Co., 195 Front-street, for best revolving meat cutter. Diploma.

A. B. Allen & Co., 189 Water-street, for a folding ladder. Diploma.

William R. Kelsey, Syracuse, N. Y., for fruit pickers, well adapted to the purpose. Diploma.

H. L. Emery, Albany, N. Y., for the best ox yoke. Diploma.

Drayton Phelps, Granby, Conn., for an ox yoke. Diploma.

H. L. Emery, Albany, N. Y., for a dynamometer for testing ploughs. Silver medal.

I. T. Grant & Co., Schaghticoke, Rensselaer county, N. Y., for a beautiful fanning mill, for hand or horse power. Silver medal.

John Bulson, 104 Goerck-street, for Maxon's spring for agricultural wagons. (A silver medal having been before awarded.) Diploma.

Special Premiums.

A. B. Allen & Co., 187 Water-street, for a very large and choice collection of farming and garden tools, and instruments well made, embracing nearly all the recent improvements. Gold medal.

John Mayher & Co., 195 Front-street, for a large and valuable collection of farming and gardening tools and implements, embracing nearly every variety of gardening and farming implements. Gold medal.

TESTING OF PLOUGHS.

John Mayher & Co., 197 Water-street, for the plough combining the greatest number of necessary requisites to plough a furrow 16 inches wide and 8 inches deep. Silver cup, \$8.

B. Myer, Newark, N. J., for the second best do. Silver medal.

John Moore, 191 Front-street, for the best plough combining the greatest number of necessary requisites to plough a furrow 12 inches wide and 6 inches deep. Silver cup, \$8.

John Mayher & Co., 197 Water-street, for the second best do. Silver medal.

PLOUGHING MATCH.

Ephraim Baker, Union, Essex county, N. J., for the best ploughing. Silver cup, \$8.

Patrick Whalen, Malta, Saratoga county, N. Y., for the second best ploughing. Silver medal.

S. D. Smith, Malta, Saratoga county, N. Y., for the third best ploughing. Diploma.

SPADING MATCH.

D. McVane, for the best spading of ground, 20 x 10 feet. Silver cup, \$8.

Joseph P. Lodge, Harlem, N. Y., for the second best spading Silver medal.

Alexander McCullum, for the third best spading. Diploma.

MANUFACTURING AND MECHANICAL DEPARTMENT.

ARCHITECTURAL AND MECHANICAL DRAWING.

R. Upjohn, 64 Broadway, for the best architectural drawing. Silver medal.

Burger & Schultz, for the second best architectural drawing. Diploma.

Frederick Cook, minor, Novelty Works, for the best mechanical drawing. Silver medal and \$5.

Henry T. Brown, Brooklyn, L. I., for the second best mechanical drawing. Diploma.

Minors' Work.

John D. Secor, No. 50 8th Avenue, for drawing of steamships Georgia and Ohio. \$5 and a certificate.

BATHS.

John Mack, 92 Catharine-street, for a bath tub, with heater attached, combining economy and utility. Silver medal.

John Locke, 47 Ann-street, for a shower bath, with douche, &c. Diploma.

BELLS.

Andrew Meneely, Troy, N. Y., for a chime of church bells. (Gold medal having been before awarded.) Diploma.

Andrew Meneely, Troy, N. Y., for a plantation bell of superior workmanship. Silver medal.

BOOKS, BINDING AND STATIONERY.

S. Dodd, Bloomfield, N. J., for book-binders' tools and ornaments. Diploma.

J. H. Longbotham & Co., 12 Gold-street, for best book-binders' boards. Silver medal.

J. Parkhurst, Springfield, N. Y., for second best book-binders' boards. Diploma.

Cook & Somerville, 48 Ann-street, for the best specimen of book-binding. Silver medal.

H. Frenke, 50 Cliff-street, for beautiful specimens of book-binding. Diploma.

J. B. Lippincott & Co., Philadelphia, Penn., for handsome specimens of book-binding on two bibles. Silver medal.

Stanford & Swords, 137 Broadway, for specimens of books and binding, in great variety. Diploma.

W. W. Rose, 19 Wall-street, for the best specimen of blank books. (Silver medal having been before awarded.) Diploma.

Rich & Loutrel, 61 William-street, for neat and substantial blank books. Diploma.

George Burnham, W. W. Rose, agent, 19 Wall-street, for a patent Columbian press and dampening tablet. Diploma.

John W. Stickney, Rockville, Conn., Legget Brothers, agents, 301 Pearl-street, for specimens of printing paper. Silver medal.

Francis Monroe, Concord, Mass., for the best lead pencils. Silver medal.

Minors' Work.

Charles Akers and W. H. C. Dodd, Bloomfield, N. J., for beautiful and well executed book-binders' tools. \$5 and a certificate.

GENTS' BOOTS AND SHOES.

M. B. Canfield, Orange, N. J., for the best calf skin boots. Silver medal.

David Mundell, 116 Fulton-street, Brooklyn, L. I., for the best patent leather dress boots. Silver medal.

M. B. Canfield, Orange, N. J., for the best pair of leather brogans. Diploma.

T. Winship & Co., 277 Pearl-street, for patent leather over shoes without seams. Diploma.

LADIES' BOOTS AND SHOES.

Benjamin Shaw, 73 Canal-street, for a new style of toilet slippers. Diploma.

P. Laboyteaux & Co., 631½ Broadway, for the best ladies' boots and shoes. Silver medal.

BRITANNIA WARE.

Smith & Feltman, Albany, N. Y., for the best Britannia ware. Gold medal.

J. H. Whitlock, Troy, N. Y., for the best cast and turned Britannia ware. Silver medal.

BRUSHES.

John K. Hoppel, 337 Pearl-street, for the best paint and hair brushes. Silver medal.

Steele & Co., 305 Pearl-street, for the best feather brushes. (Silver medal having been before awarded.) Diploma.

Miss S. Green, 117 Grand-street, for a feather brush very neatly made. Diploma.

CABINET WARE.

John Needham, cor. Bleecker and Grove-streets, for the best sofa bedstead. Silver medal.

A. G. Warren, Norwich, Conn., for the second best sofa bedstead. Diploma.

John Colsey, 26 Harrison-street, for the best portable writing desk. Silver medal.

William Stoddard, for the second best work box. Diploma.

J. Smith, 105 Fulton-street, for extension tables, bureaux and book cases. Diploma.

W. B. Lane, 23 Catharine-street, for a dressing case. Diploma.

J. Bradley, 317 Pearl-street, for papier maché chairs and table. (Silver medal having been awarded.) Diploma.

James H. Cooke, 92 Broadway, for a counting house desk. Diploma.

Mrs. E. Moxen, Williamsburgh, L. I., for an inlaid work table, and pearl and shell work. Diploma.

Jacob Steurer, 89 19th-street, for cane seats. Diploma.

R. H. & J. G. Isham, 71 Fulton-street, for best sand paper. (Silver medal having been before awarded.) Diploma.

G. W. Whitmore, Brooklyn, L. I., for second best sand paper. Diploma.

Minors' Work.

H. Miller, 104 3d Avenue, for the best inlaid work table. Certificate and \$5.

CAKES AND CONFECTIONARY.

Benjamin Wilt, 384 Grand-street, for the best plum cake. Diploma.

J. A. Currier, 191 Greenwich-street, for the second best plum cake. Diploma

H. Tateosyan, 57 2d-street, for very superior fig paste. Diploma.

Bernard Myers, 83 Hammond-street, for excellent tea biscuit. Diploma.

Erastus Titus, 283 Washington-street, for the best assortment of soda, wine, and other biscuit. Diploma.

Charles J. Harris, Houston, cor. Mercer-street, for a good article of unfermented bread. Diploma.

CARPETING AND OIL CLOTH.

A. & E. S. Higgins, 62 Broad-street, for the best specimens of velvet tapestry carpeting. Gold medal.

Peterson & Humphreys, 432 Pearl-street, for Axminster carpeting. Silver medal.

G. L. Humphrey, 432 Pearl-street, for a rich ch  nille rug. Diploma.

Henry Pettes & Co., Boston, Mass., for Brussels tapestry carpeting. Silver medal.

Isaac Clark, 154 Water-street, for a bronze oil cloth piano cover. Diploma.

William Lewis, 452 Pearl-street, for oil cloth table covers. Diploma.

D. Harris, Jr., Albany, N. Y., for a bronze velvet window shade. Diploma.

Young & Jayne, 460 Pearl-street, for 3 ply ingrain carpeting. Diploma.

CARRIAGES AND SLEIGHS.

Hedenberg & Littell, Newark, N. J., for the best buggy wagon. Silver medal.

John G. Ostrom, Rhinebeck, N. Y., for the best sleigh. Silver medal.

Isaac M. Tompkins, 183 Eldridge-street, for a carman cart, very superior workmanship. Silver medal.

Downs & Smith, Birmingham, Conn., for very superior stub joints for carriages. Silver medal.

Junius Foster & Alfred E. Smith, 93 Maiden-Lane, for the best mode of connecting hubs to axles. Silver medal.

John Swenarton, 225 Greenwich-street, for a shifting carriage pole. Diploma.

F. Finnimore, Bridgeport, Conn., for a patent blind for coaches. Diploma.

David W. Seely, Carlisle, Schoharie county, N. Y., W. R. Tattersall, agent, 22 Avenue D., for patent wagon coupling for bolsters and front axles. Diploma.

Joseph Pine, 119 Walker-street, for an ingenious hose carriage.

Joseph Pine, 119 Walker-street, for a hook and ladder truck. Diploma.

Henry J. Kip, Newark, N. J., for a superior farm wagon. Silver medal.

CARVING.

W. Wedehase, 94 Reade-street, for the best carved frame. Diploma.

David S. Stewart, 97 Forsyth-street, for the best carving and gilding. Diploma.

CASTINGS.

Hare & Pugh, Eagle Foundry, West-13th street, for the best specimen of green sand iron castings. Silver medal.

Calvin Bacon, 113 Division-street, for the second best do. Diploma.

Leroux & Villot, 83 Duane-street, for the best specimens of bronze castings. Silver medal.

Alexander Marshall, 407 and 409 Cherry-street for beautiful specimen of enamelled ware. Gold medal.

Novelty Iron Works, Dry Dock, for a washing engine for a paper mill. Requiring, in the judges' opinion, a much higher talent than any

other exhibited. One of the firm being a manager, are debarred by the rules from receiving a premium.

CLOCKS AND WATCHES.

C. Jerome, New-Haven, Conn., for an eight day spring clock. Diploma.

Frederick Kiddle, 88 Fulton-street, for a marine time piece with lever escapement. Silver medal.

CLOTHING.

J. H. Croney, 720 Broadway, for the best adults' clothing. Silver medal.

J. Vanderbilt, 36 Maiden Lane, for the second best adults' clothing. Diploma.

Ellis & Iselton, 439 Broadway, for the best children's clothing. Silver medal.

E. M. Pomeroy, Wallingford, Conn., for superior paper and straw button. Silver medal.

COMBS AND MOROCCO, &c.

Z. M. Quimby, 303 Broadway, for the best carved shell combs, superior workmanship. Silver medal.

N. Moxon, Williamsburgh, L. I., for best tortoise shell and pearl work. Silver medal.

J. M. L. Scoville, 101 William-street, for best daguerreotype cases. Diploma.

E. Anthony, 205 Broadway, for the second best daguerreotype cases. Diploma.

COOPERS' WORK

Minors' Work.

Edward Botham, 65 Goerck-street, for the best 10 gallon keg. \$5 and a certificate.

John C. Bissel, 10½ Front-street, for a coffee barrel. \$3 and a certificate.

Augustus Edmondson, 49 Clinton-street, for a 20 gallon barrel. \$3 and a certificate.

COTTON GOODS.

New-York Mills, Onedia Co., N. Y., Charles Carville, agent, 17 Broad-street, for the best cotton goods, consisting of sup. water twist, long cloth, ex. fine shirtings and sup. twilled jeans. Gold medal.

Wamsutta Mills, New-Bedford, Mass., Willard and Wood, agents, 40 Broad-street, for the second best bleached shirtings. Silver medal.

Ash Fitch, Fitchville, Conn., Fitch & Co., agents, 43 New-street, for the best heavy sheetings. Silver medal.

J. J. Kilton, Coventry, R. I., Lord, Warren, Salter & Co., agents, 44 and 46 Broad-street, for the best brown sheeting. Diploma.

Mount Vernon Manufacturing Company, Alexandria, MacGregor & Timpson, agents, 47 Broad-street, for a good specimen of brown sheeting. Diploma.

Robert Rennie, Lodi Print Works, G. Pattison & Co., agents, 43 and 45 Broad-street, for the best cashmere d'Ecosse. Gold medal.

Manchester Print Works, Manchester, N. H., Stone & Co., agents, 48 Exchange Place, for the best mousselin de laines and cashmere d'Ecosse—improvement over last year. Silver medal.

American Print Works, Fall River, Mass., for handsomely designed and well executed prints. Silver medal.

Benjamin Marshall, Troy, N. Y., Charles Carville, agent, 17 Broad-street, for specimens of 30 inch ginghams. Diploma.

J. McCormick, Lord, Warren, Salter & Co., 44 and 46 Broad-street, for superior apron checks. Diploma.

Daniel Lord, Elktown, Penn., Bramhall & Hastings, agents, 57 Liberty-street, for jacquard diaper. Diploma.

R. Garsed & Brothers, MacGregor & Timpson, agents, 47 Broad-street, for the best specimens of ticking. Diploma.

Lancaster Quilt Company, Lancaster, Mass., B. F. Seaver, agent, 31 Broad-street, for the best manufactured quilts. Diploma.

S. Shepard & Son; Shepard, Wright & Ripley, agents, 37 Pine-street, for the best canton flannel. Silver medal.

James Maull, Philadelphia, Penn., R. J. Maull, agent, 114 Wall-street, for the best cotton duck. Silver medal.

Benjamin Flanders, 88 South-street, for the second best cotton duck. Diploma.

A. Wortendyke, Paterson, N. J., for superior chandlers' wick. Diploma.

J. L. & S. Shreve, Mount Holley, N. J., E. M. Townsend, agent, 54 Cedar-street, for superior colored thread. Diploma.

CUTLERY.

Waterville Manufacturing Company, Waterbury, Conn., for the best pen and pocket cutlery. Gold medal.

Pratt, Ropes, Webb & Co., Meriden, Conn., for the best table cutlery. Gold medal.

R. Heinisch, Nassau, cor. Fulton-street, for the best tailors' shears. (Gold medal having been before awarded.) Diploma.

J. Rowe, 16 Platt-street, for the second best tailors' shears. Diploma.

John C. Nixon & Son, 44 Chatham-street, for carving knives made from Adirondac steel. Diploma.

Lamson, Goodnow & Co., 12 Platt-street, for excellent butcher knives. (Silver medal having been before awarded.) Diploma.

Minors' Work.

John Wild, 160 Division-street, for superior small cutlery. \$5 and Certificate.

DAGUERREOTYPES.

M. B. Brady, 205 Broadway, for the best daguerreotypes. Gold medal.

M. A. Root, Philadelphia, Penn., for the second best daguerreotypes. Silver medal.

D. E. Gavit, Albany, N. Y., for daguerreotypes. Diploma.

DRUGS AND CHEMICALS.

Cogswell, Crane & Co., 104 Wall-street, for the best saleratus. Diploma.

Browne & Lombard, 117 Front-street, for the second best saleratus. Diploma.

Browne & Lombard, 117 Front, for an excellent quality of sup. carb. soda. Silver medal.

Joseph E. Hover, Philadelphia, Penn., for the best specimen of black ink. (Silver medal having been before awarded.) Diploma.

Francis & Loutrel, 77 Maiden Lane, for the second best specimen of black ink. Diploma.

S. T. Ball & Co., Boston, Mass., Henry Butler, agent, 93 Wall-street, for the best candles. Diploma.

Veeder & Whittlesey, 88 Front-street, for the second best candles. Diploma.

Mrs. J. E. Barrows, 32 Columbia street, for the best paste blacking. Diploma.

Leland & Beach, 159 Front-street, for the best lard oil. Diploma.

O. M. Ballard, 46 Courtlandt-street, for the best hair dye. Diploma.

James Crumbie, 263 Broadway, for the best cologne water. Diploma.

Pierson & Robertson Newark, N. J., for the best varnish. Diploma.

Martin Kalbfleisch, Green Point, L. I., for the best specimens of chemical preparations. Silver medal.

Samuel Witherell, cor. Front and Fletcher-streets, for the second best specimens of chemical preparations. Diploma.

William Blake, 3 Broad-street, for the best fire proof paint. (Silver medal having been before awarded.) Diploma.

Alexander Denniston, 205 Fulton-street, for the best furniture polish. Diploma.

F. Ramppen, Brooklyn, L. I., for the best starch. Diploma.

Charles Partridge, 3 Cortlandt-street, for the best friction matches, &c. (Silver medal having been before awarded.) Diploma.

Walker & Co., 61 Elizabeth-street, for the best mustard. Diploma.

H. L. Kendall & Co., Providence, R. I., Steel & Co., agents, 305 Pearl-street, for the best washing soap. Silver medal.

Job W. Greene, 11½ Broadway, for washing soap. Diploma.

John L. Salisbury, 63 Liberty-street for chemical soap, for removing oil, &c., from silk and woollen.

William Ross, John Roach, agent, 79 Nassau-street, for a preparation for cleansing daguerreotype plates. Diploma.

Quarterman & Sons, 114 John-street, for a variety of American paints, polish for stoves, gold size, and an improved dryer to mix with paints. Silver medal.

J. Cumberland & Brother, Elizabethport, N. J., for metallic oil for machinery. Diploma.

Thomas J. Husband, H. Haviland, agent, 80 Maiden-Lane, for calcined magnesia. Diploma.

Delluc & Co., 581 Broadway, specimens of flexible ivory nursing tubes, &c. Diploma.

Mt. Eagle Manufacturing Company, Boston Mass., W. A. Beecher, agent, 27 Merchants' Exchange, for specimens of tripoli. Diploma.

William Humphreys, Savannah, Geo., Haydock, Corlies & Co., agents, 218 Pearl-street, for a specimen of alcohol from the peel of sour oranges. Diploma.

Daniel Smith & Son, for specimen of American paint, black and brown shades. Diploma.

Tilden & Co., New-Lebanon, N. Y., for a fine assortment of medicinal extracts, powdered herbs, &c. Silver medal.

Russell & Stiles, 135 Water-street, for a specimen of extract of logwood for dyeing. Silver medal.

William J. Ross, cor. 30th-street and Broadway, for cleaned kid gloves. Diploma.

William Burger, 24 Cortlandt-street, for a beautiful specimen of crystalized saltpetre. Diploma.

Theodore Schwartz, 32 Burling-Slip, for a superior Paris green, of uniform shade and color. Gold medal.

Jeffries & White, 146 Troy-street, for refined sulphur. Silver medal.

Union White Lead Company, James Howe, agent, 175 Front-street, for pure dry white lead. (Silver medal having been before awarded.) Diploma.

J. W. Kelly, 34 Beekman-street, for lemon sugar. Diploma.

J. Ketchum, 60 South-street, for varnish for roofs. Diploma.

Johnson & Sloan, 438 Pearl-street, for an excellent specimen of map varnish. Diploma.

P. L. Szadeczky, 93 Murray-street, for essence of coffee. Diploma.

Thomas Manson, 20 8th Avenue, for vanilla tooth wash. Diploma.

Owen Benson, Seneca Falls, N. Y., John Ogden Dey, agent, 2 Wall-street, for compound stove varnish. Diploma.

W. R. Dwight, 138 Maiden-Lane, for furniture varnish of excellent quality. Diploma.

W. H. Bannister, Newark, N. J., for the best leather preservative. Diploma.

C. Pavey, 494 Hudson-street, for oil blacking for softening and renewing harness, carriage tops, &c. (Silver medal having been before awarded.) Diploma.

Atkinson & Co., 605 Grand-street, for the best soda water, with ginger and lemon syrups. Diploma.

William Eagles, 194 Fulton-street, for the best soda water, with sarsaparilla and raspberry syrup. Diploma.

EDGE TOOLS, ETC.

W. Stephens & Son, G. DeWitt, agent, 109 John-street, for paper makers' wire. The first successful introduction of the article in this country. Gold medal.

Ames Manufacturing Company, Chickapee, Mass., James F. Ames, agent, for swords of elegant workmanship. Gold medal.

New-England Iron Company, Providence, R. I., B. H. Green & Son, agents, 94 Wall-street, for wrought iron spikes and nails, made by machinery. Silver medal.

New-England Screw Company, Providence, R. I., B. H. Green & Son, agents, 94 Wall-street, for gimlet screws. Diploma.

L. Bolles, East Smithville, Chenango county, N. Y., for edge tools. Silver medal.

David Maydole, C. Blevins, agent, 9 Platt-street, for the best cast steel hammers. Silver medal.

Sadler & Hoyt, 11th-street, between 1st and 2d Avenues, for the second best hammers. Diploma.

Henry Nelson, 240 3rd Avenue, for superior machinists' hammers. Diploma.

R. Hoe & Co., Gold-street, for a circular saw in frame. Silver medal.

P. B. Frayley, Philadelphia, Penn., Alford & Dash, 5 Platt-street, for excellent saws. Diploma.

D. J. Canfield, G. W. Andruss, agent, Newark, N. J., for planes and coachmakers' tools. Silver medal.

Josiah Wilcox, Portchester, N. Y., for tinnerns' tools. Diploma.

Anthony Vittaly, Newark, N. J., for shoemakers' tools. Diploma.

J. C. Nixon & Son, 44 Chatham-street, for engravers' tools. Diploma.

John Toler, Newark, N. J., for cabinet hardware Diploma.

Daniel Houston, 13 Ridge-street, for a cooper's croze. Diploma.

Robert Eastman, Concord, N. H., for a tool for turning grindstones. Diploma.

W. H. Blye, De Ruyter, Otsego county, N. Y., J. Loomis, agent, for a patent bevel plane. Diploma.

J. Coughty, 291 Bowery, for planes. Diploma.

John Leverett, 46 Broad-street, for excellent axes. Diploma.

C. W. Boutgen, A. Barclay & Co., agents, Newark, N. J., for patent skates. Diploma.

L. Wetmore, 15 Platt-street, for a nest of brass kettles. Silver medal.

Duryea & Rhodes, 229 Pearl-street, for cast steel shovels and grain scoops, Diploma.

G. Sandford, 43 Gouverneur-street, for a patent auger handle. Diploma.

Minors' Work.

Joseph Wilcox, Portchester, N. Y., for a pair of tinnern's shears. \$5 and Certificate.

ENGRAVING.

Sarony & Major, 117 Fulton-street, for the best lithography. Gold medal.

Mayer & Korff, 7 Spruce-street, for lithography engravings, very neat. Silver medal.

Frank Leslie, 109 Fulton-street, for the best wood engraving. Silver medal.

John W. Orr, 75 Nassau-street, for excellent specimens of wood engraving. Silver medal.

William Roberts, 13 Chambers-street, for specimens of wood engravings. Diploma.

John La Tourrette, New-Orleans, La., for maps of Louisiana and Mississippi. Silver medal.

A. & J. McLees, 170 Broadway, for fine specimens of card engraving. Diploma.

Minors' Work.

William H. Van Ingen, 69 Nassau-street, for specimens of wood engravings. Certificate and \$5.

John Lloyd, 64 Forsyth-street, for engravings on gold watch cases. \$5 and Certificate.

FINE ARTS.

M. G. Lenghi, 18th-street, near 3d Avenue, for the best statuary marble mantle piece. Gold medal.

Shuster & Co., 36 Great Jones-street, for the second best statuary marble mantle piece. Silver medal.

P. Le Preux, 146 Walker-street, for a composition vase. Silver medal.

Thorp & Grenell, 34 Carmine-street, for painting on Hose Carriage, No. 3. Diploma.

Marion M. Day, Brooklyn, L. I., for crayon drawings. Diploma.

Charles Bullet, Brooklyn, L. I., for a statuette of Mr. Brown. Diploma.

William Hickey, 13th-street. for statuary. Diploma.

F. Silva, H. Hays & N. P. Beers, 101 East-Broadway, for specimens of pen drawing. Diploma to each.

Philibert Borrel, 251 Broadway, for cameo likenesses. Silver medal.

FIRE ARMS.

S. B. Amory, Goshen, N. Y., for the best rifle. Silver medal.

M. M. Cass, Utica, N. Y., for a repeating rifle, calculated to fire 26 times at one loading. Silver medal.

J. G. Bolen, 104 Broadway, for revolving pistols. Diploma.

R. Agar, Brooklyn, L. I., for a miniature rifle. Diploma.

Edward Payson, Newark, N. J., for percussion caps. Diploma.

FIRE WORKS.

Isaac Edge, Jr., Jersey City, N. J., for the best display of fire works. Silver cup, \$15.

John W. Hadfield, Williamsburgh, L. I., for the second best display of fire works. Silver cup, \$8.

FISHING TACKLE.

J. & J. C. Conroy, 52 Fulton-street, for the best fishing tackle, rods, reels, &c. Silver medal.

John J. Brown, 103 Fulton-street, for artificial baits made of gutta percha. Diploma.

T. Finnagan, 26 Madison-street, for a great variety of flies for fishing. Diploma.

FLAX, HEMP AND ITS MANUFACTURES.

Henry H. Stevens, Webster, Mass., for a piece of bleached linen sheeting wove by power loom. (Tallmadge premium.) Gold medal.

American Hemp Company, Springfield, Illinois, for superior water rotted hemp. Gold medal.

Henry Alexander, Mason & Co., Kentucky, MacGregor & Norris, agents, 10 Broadway, for beautiful specimens of fine and coarse dew rotted hemp. Gold medal.

GLASS, CHINA AND EARTHENWARE.

Brooklyn Flint Glass Company, 30 South William-street, for the best specimens of flint colored, plain and cut glass. Gold medal.

Berger & Walter, 39 Maiden-Lane, for second best specimens of flint colored, plain and cut glass. Silver medal.

Geo. W. Benson, Troy, N. Y., for the best specimen of Rockingham ware. Silver medal.

A. E. Smith & Sons, Norwalk, Conn., for specimens of Rockingham ware. Diplom

J. M. Pruden, Elizabethtown, N. J., for specimens of Rockingham ware. Diploma.

Woram & Haughwout, 561 and 563 Broadway, for specimens of painting on china. Silver medal.

G. W. Wheaton, 30 South William-street, for enamelled glass jars. Diploma.

J. D. Myers, 82 Pearl-street, for air tight preserve jars. Diploma.

WINDOW GLASS.

Redford Glass Co., Redford, Clinton county, N. Y., Morgan, Walter & Smith, agents, 48 Cliff-street, for specimens of Redford crown glass. (Silver medal having been before awarded.) Diploma.

GOLD PENS.

Spencer, Rendell & Dixon, 170 Broadway, for the best gold pens. Silver medal.

GUTTA PERCHA.

S. T. Armstrong, 181 Broadway, for isolating telegraph wires with gutta percha. Gold medal.

HATS, CAPS, AND MANUFACTURED FURS.

John N. Genin, 214 Broadway, for the best moleskin hat. Silver medal.

C. Smith, 192 Fulton-street Brooklyn, L. I., for the second best moleskin hat. Diploma.

John N. Genin, 214 Broadway, for the best child's fancy hat. Diploma.

Charles Knox, 128 Fulton-street, for the second best child's fancy hat, (white angola.) Diploma.

William Moser, 43 Maiden Lane, for the best manufactured furs. Silver medal.

J. H. Harley, 34 Maiden Lane, for the second best manufactured furs. Diploma.

STRAW HATS, &c.

J. Richardson, East Medway, Mass., R. L. Baldwin, agent, 138 Water-street, for extra fine split straw bonnets. Silver medal.

Hills & Fisher, 128 Pearl-street, for cactus braid bonnets, very durable and economical. Diploma.

J. Parker, 138 Pearl-street, for cactus braid. Diploma.

Mrs. S. Kendall, 136 Bowery, for pamela bonnets. Diploma.

INDIA RUBBER GOODS.

Union India Rubber Co., 19 Nassau-street, for the best general display of India rubber goods, and exhibits some improvements over last year. Gold medal.

D. Hodgman, 27 Maiden Lane, for the second best general display of India rubber goods. Silver medal.

Hayward Rubber Co., Colchester, Conn., for the best India rubber shoes. Silver medal.

Newark India Rubber Co., for the second best India rubber shoes. Diploma.

S. J. Seely, 11 Park Row, for India rubber life preserving hammocks. Silver medal.

H. H. Day, 23 Cortlandt-street, for India rubber coats, caps, &c. Diploma.

IVORY TURNING.

F. G. Ford, 90 Fulton-street, for the best ivory turning. Silver medal.

LAMPS AND CHANDELIERS.

Cornelius & Co., Philadelphia, Penn., Woram & Haughwout, agents, 561 Broadway, for the best gas fixtures, chandeliers and candelabras. Gold medal

Allcock & Allen, 341 Broadway, for second best chandeliers and candelabras. Silver medal.

J. G. Webb & Co., 38 Burling-slip, for tulip and rose gas burners for parlor lamps and chandeliers. Silver medal.

R. C. Overton, 12 Allen-street, for patent oil and gas burners, a neat and convenient arrangement for raising or depressing the wick. Diploma.

Roberts, Eagles & Co., Newark, N. J., for fine coach lamps. (Silver medal having been before awarded.) Diploma.

F. Quarre, 159 William-street, for neat and ornamental paper lamp shades. Diploma.

Endicott & Summer, 106 Elm street, for a miniature solar lamp. Silver medal.

Minors' Work.

W. Derby, 139 William-street, for a specimen of lacquering. \$3 and Certificate.

LEATHER.

George Kellogg, Winsted, Conn., for superior bark tanned sheep skins, shaved bark tanned, and bark tanned lamb skins. Silver medal.

L. Shepard & Son, Norfolk, Conn., for bark tanned sheep skins. Diploma.

James Cauthers, 266 Second-street, for superior harness leather. Diploma.

Pierson & Berry, Newark, N. J., for russet bridle and skirting leather. Diploma.

Thomas T. Kelly, 33 Ferry-street, for lace calf skins, superior workmanship. Diploma.

Leonard Gallagher & Co., 248 Canal-street, for black morocco skins. Diploma.

Adam Smith & Son, 55 Ferry-street, for Turkey morocco and Tampico colored boot morocco. Diploma.

J. H. Bowie & Co., 30 Ferry-street, for superior leather hose and pipes. Gold medal.

T. Cliff Jones, for fine sheep skin mats. Diploma.

BANK LOCKS.

J. H. Butterworth & Co., Dover, N. J., for the best bank locks. Gold medal.

LOCKS, DOOR SPRINGS, ETC.

Lewis Lillie, Troy, N. Y., for the best store door lock. Silver medal.

S. D. Pye, Aquackanock, N. J., for the second best store door lock. Diploma.

Chas. A. Dayton, 50 East 18th-street, for patent fly trunk lock. Diploma.

Edward Lippincott, 71 Charlton-street, for safe padlock. Diploma.

G. W. Day, 146 Wooster-street, for patent fly chest lock. Diploma.

A. B. Tafts, 52 White-street, for a double acting hinge and spring. Diploma.

Seymour, Bros. & Co., Westmoreland, Oneida county, N. Y., for a self shutting gate hinge. Diploma.

C. Reed, Cambridge, Mass., J. Monroe, 101 Wall-street, for a patent hinge and fixture for opening and shutting window blinds without raising the sash. Diploma.

Ira Glynn, Syracuse, N. Y., for a patent window lock. Diploma.

Nath. Potter, Buffalo, N. Y., for a door holder, (Morris' patent.) Diploma.

John Green, 135 Walker-street, for a door spring. Diploma.

Baldwin & Many, 34 John-street, for the best porcelain door knobs. Silver medal.

Richard Best, 274 Pearl-street, for the best furniture knobs. Diploma.

George H. Swords, 116 Broadway, for a valuable improvement in mounting door knobs. Silver medal.

New-England Butt Company, Providence, R. I., A. Pettibone, agent, 19 Platt-street, for the best butt hinges. Silver medal.

Blake & Bros. New-Haven, Conn., for the second best butt hinges. Diploma.

Curtis, Morgan & Co., West Meriden, Conn., for locks and knobs. Diploma.

J. F. Day, 146 Wooster-street, for argillo knobs. Diploma.

Seymour, Bros. & Co., Westmoreland, Oneida county, N. Y., for door butts, bolts, &c. Diploma.

J. M. McLaughlin, 589 Broadway, for a parautoptic ventilator. Diploma.

Minors' Work.

Thomas Day, 589 Broadway, for a French window bolt. \$5 and Certificate.

MACHINERY, MODELS, AND NEW INVENTIONS.

H. Winter, 57th-street, for the best model of an upright steam engine. Diploma.

Horace Higby, 349 Broadway, for the second best model of a steam engine. Diploma.

Hudson M. G. Wolfe, Brooklyn, L. I., for a miniature steam engine. Diploma.

E. G. Covill, 121 West 19th-street, for a model of a steam engine. Diploma.

William Kumbel, 33 Ferry-street, for the best patent improved machine stretched leather banding. Gold medal.

Rees & Hoyt, 67 and 69 Frankfort-street, for second best leather bands, rivetted. Silver medal.

Down, Mynders & Co., Seneca Falls, N. Y., S. M. Giddings, agent, for the best lifting and single acting pumps. Silver medal.

Cowing & Co., Seneca Falls, N. Y., for the second best lifting and single acting pumps. Diploma.

J. A. Brush & Co., 83 Pike Slip, for the best double acting lift and force pump, hand power. (Silver medal having been before awarded.) Diploma.

G. B. Farnam & Co., 31 Fulton-street, for the second best lift and force pump. Diploma.

G. P. Strong, Rochester, N. Y., for the best rotary engine. Diploma.

John C. Howard, Williamsburgh, L. I., for the second best revolving rotary piston engine. Diploma.

Ebenezer Barrows, 228 Water-street, for a rotary engine. Diploma.

Adirondac Steel Manufacturing Company, Jersey City, N. J., Quincy and Delapiere, agents, 81 John-street, for the best American steel. Gold medal.

Daniel Adey, 107 Fulton-street, for the second best American steel. Silver medal.

Thomas King, West Farms, N. Y., for the best railway washing machine. Diploma.

Lyman Mudge, Elizabethtown, N. J., for the second best washing machine, Ricks' patent. Diploma.

E. & T. Fairbanks & Co., St. Johnsbury, Vt., Fairbanks & Co., agents, 81 Water-street, for the best platform and counter scales. (Silver medal having been before awarded.) Diploma.

New-York Journeymen Scale Makers' Society, George G. Shepherd, agent, 145 Maiden-Lane, for the second best platform scales, cotton beam, &c. Silver medal.

S. Wetmore, 15 Platt-street, for a platform Scale. Diploma.

E. Harrison, New-Haven, Conn., for the best grist mill. Gold medal.

Thomas J. Moody, Bridgeport, Conn., for the second best grist mill. Diploma.

Bush & Lobdell, Wilmington, Del., for the best car wheel. Silver medal.

Horatio Eames, Falls Village, Conn., for the second best car wheels. Diploma.

Davidson, Hark & Woolson, Springfield, Vt., Andrews & Jesup, agents, 70 Pine-street, for the best improved cloth shearing machine with self-acting list guards. Gold medal.

L. Wilder & Co., Hoosick Falls, for the second best shearing machine. Diploma.

Waring Latting, 278 Broadway, for the best filters, "tubular." Silver medal.

W. H. Jennison, 132 Mercer-street, for the second best filters. Diploma.

A. M. Freeland, 78 Mangin-street, for an improved self acting boring, turning, and screw cutting slide lathe. Gold medal.

Luther Cary, 98 Forsyth-street, for the best slide lathe, (large size.) Gold medal.

Hewes & Phillips, Newark, N. J., for the best engine lathe, (small size.) Silver medal.

Walker & Brothers, 147 Christie-street, for the second best engine lathe, (large size.) Silver medal.

Guilford Manufacturing Company, Guilford, Conn., for a small slide lathe. Diploma.

Oliver Snow & Co., Meriden, Conn., for an engine lathe, (medium size.) Silver medal.

G. B. Hartson, 58 and 60 Vesey-street, for the best iron planing machine. Gold medal.

Hewes & Phillips, Newark, N. J., for the second best iron planing machine. Diploma.

William Burden, Brooklyn, L. I., for a high pressure engine, with an improved cut-off. Silver medal.

John D. Haines, 551 Grand-street, for the best improved hydrant. Silver medal.

William Gee, 47 Eldridge-street, for the second best hydrant, (self-acting.) Diploma.

Paul Stillman, Novelty Works, for the best glass water guage.

John Matthews, Sixteenth-street and 1st Avenue, for the second best water guage. Diploma.

H. R. Worthington & W. H. Baker, 103 Front-street, for a percussion water guage. (Silver medal having been before awarded.) Diploma.

George Faber, Canton, Ohio, J. P. Pirrson, agent, 5 Wall-street, for a magnetic water guage for steam boilers. Silver medal.

Alfred Swingles, Galveston, Texas, A. Hunt, manufacturer, Boston, Mass., for the best boring, morticing and tenoning machine. Silver medal.

R. Bartlett, West Washington, Mass., for the second best morticing and tenoning machine. Diploma.

J. R. & A. Inslee, Newark, N. J., for the best upright drill. Silver medal.

Walker & Brothers, 147 Christie-street, for the second best upright drill. Diploma.

Leonard Smith, Troy, N. Y., for the best improved ventilating smut machine. Gold medal.

William P. Springer, Oswego, N. Y., for the second best smut machine. Silver medal.

Joseph P. Woodbury, Boston, Mass., for a stationary cutter wood planing machine. Silver medal.

E. G. Allen, Boston, Mass., for a patent wood planing machine. Silver medal.

Harvey Law, for a planing, tongueing and grooving machine. Silver medal.

John Massey, 227 Mulberry-street, for a model of grain dryer, ship bread and cracker baker. Diploma.

David Dick, Meadville, Penn, manufactured cor. of Washington and Jane-street, N. Y., for a new power press of excellent construction. Gold medal.

Joseph Jones, Camden, N. J., for a boring machine for wood. Diploma.

A. G. Heckrotte, Cumberland, Md., for attaching and detaching self-acting coupling, for rail-road cars. Silver medal.

H. R. Worthington & W. H. Baker, 103 Front-street, for an improved safety steam pump. (Gold medal having been before awarded.) Diploma.

H. R. Worthington & W. H. Baker, 103 Front-street, for a wrecking and draining pump. Silver medal.

John Whitmore & Co., 101 Pearl-street, for a card sticking machine. Gold medal.

Judson, De Wolfe & Co., Harlem, N. Y., for a circular saw, arbor and frame. Diploma.

J. A. Fay & Co., Keene, N. H., for improved machines for morticing and tenoning hubs. Silver medal.

John Mills, 44 Avenue D., for a sausage machine. Diploma.

Edward Flagler, 211 Water-street, for blacksmiths' jewellers' and dentists' portable forges. Silver medal.

J. A. Fay & Co., Norwich, Conn., for improved power mortising and sash sticking machines. Silver medal.

Roy & Wilcox, Berlin, Conn., for a sheet iron and stove pipe folding machine. Diploma.

A. W. Metcalf, 63 & 65 Centre-street, for gauge, globe and oil cocks, and burnished stop basin cocks. Silver medal

Benedict & Ball, Chickapee, Mass., A. F. Decker, agent, 81 John-street, for patent faucets. Diploma.

D. H. Butz & Co., 15 Canal-street, for beautiful silver faucets. Diploma.

Gerow & McCreary, 335 Stanton-street, for a luring machine for hatters. Diploma.

E. Harris, Springfield, Mass., for a tuyere. Diploma

W. Snell, Easton, Penn., for a machine for cutting gaiter boots without seams. Diploma.

C. Hart, 29 1st Avenue, for a model of a car wheel. Diploma.

D. D. Badger & Co., 44 and 46 Duane-street, for a truss floor. Diploma.

J. Ball & Co., Reade, cor. Centre-street, for patent indestructible water pipes. (Silver medal having been before awarded.) Diploma.

Duncan & West, 4 Liberty Place, for a mangling machine. Diploma.

A. Griesch, 152 Third-street, for revolving shutters. Diploma.

T. Davison, 76 Sixth-street, for a revolving cylinder to illustrate a patent process for salting meat in warm climates. Silver medal.

J. A. H. Bell, 149 Maiden Lane, for hair felt for covering boilers. Diploma.

Peter Cooper, Trenton Iron Works, N. J., for superior puddled iron, made with anthracite coal. Gold medal.

Jesse Urmy, Wilmington, Del., for a self supporting portable endless chain and railway horse power. Diploma.

George Vail, Speedwell, N. J., for a model of a planetary horse power. Diploma.

William Stoutenburgh, 114 John-street, for rotary wash tubs. Diploma.

A. D. Baldwin, 34 John-street, for a model of an improved shutter bar. Silver medal.

E. W. Slater, Lansingburgh, N. Y., for a plan of fence and gate. Diploma.

O. Snow & Co., Meriden, Conn., for a hand planing lathe, (small size.) Diploma.

W. Ostrander, 25 Hester-street, for a specimen of zinc tubing. Diploma.

Nathaniel Fenn, 145 6th Avenue, for an ingenious pair of smith's bellows. Silver medal.

Samuel Down, 22nd-street, for a dry gas meter. (Silver medal having been before awarded.) Diploma.

Joseph Goldie, 192 Houston-street, for iron vices. Diploma.

Blodget & Lerow, Boston, Mass., for a patent sewing machine, very ingenious, (stitches 1 yard per minute.) Silver medal.

Matteawan Co., Fishkill, Dutchess county, N. Y., W. B. Leonard, agent, 66 Beaver-street, for a nest of pulleys with hangers. Diploma.

E. Kellogg & Co., New-Hartford, Conn., Andrews & Jessup, agents, 70 Pine-street, for a patent hard waste picker. Silver medal.

Sibley & Barber, Bennington, Vt., for a flock cutting waste dusting machine. Diploma.

F. M. Ray, 98 Broadway, for India rubber car springs. (Gold medal having been before awarded.) Diploma.

J. G. Woodward, Worcester, Mass., for a stand for changing switches. Diploma.

Norris, Gregg & Norris, 62 Gold-street, for coils for heaters, steam heater, cluster of steam fittings, pipes, &c. Diploma.

Edward L. Yeoman, T. W. & R. King, agents, 136 Nassau-street, for a portable writing machine for the blind. Diploma.

R. Hoe & Co., Gold-street, for a card printing press. Diploma.

H. Taylor & Co., Troy, N. Y., for wrought iron nuts. Diploma.

N. Schofield, Norwich, Conn. for a model of steam geared regulator. Diploma.

Paul Stillman, Novelty Works, for manometers for locomotives and Mississippi river boats. Silver medal.

Reynolds Brothers, 85 Liberty-street, for specimens of safety fuse for blasting and mining. Diploma.

William Burdon, Brooklyn, L. I., for a high pressure engine. (Gold medal having been before awarded.) Diploma.

H. Waters, Birmingham, Conn., for ratchet drills. Diploma.

Jas. L. Morris, 3 16th-street, George Vandenhooft, agent, Paterson, N. J., for telegraph switches and segmental railroad trucks. Silver medal.

R. F. Mason, 306 Pearl-street, for very fine flue brushes. Diploma.

Wright & Co, Springfield, Mass, for superior workmanship on a wrought iron car axle. Diploma.

George Saphen, for a model of a machine for extracting water from cotton. Diploma.

J. L. Alcott, Oriskany Falls, Oneida county, N. Y., for a model of an eccentric and concentric lathe. Diploma.

S. W. Bullock, 37 South street, for an improved hand hay press and dry goods hand press. Silver medal.

William Kingsley, 38 John street, for a pin machine. Silver medal.

John King, Waterford, N. J., for taps and dies. Diploma.

M. P. Coons, Lansingburgh, N. Y., for a self-rotating rock drilling machine. Silver medal.

S. T. McDougall, 103 Wall street, for a sugar crusher. Diploma.

A. S. Marvin, 138½ Water street, for a fire proof safe. Silver medal.

Howes, Marvel & Davol, Fall River, Mass., for a well finished wrought iron speeder flyer. Diploma.

Mason H. Ford, New-Haven, Conn., for a patent railroad annunciator. Diploma.

J. Rutherford Worster, Baltimore, Md., for a model of an improved diving bell. Gold medal.

W. Ballard, 7 Eldridge street, for jack screws. (Silver medal having been before awarded.) Diploma.

H. L. B. Lewis, New-York, for railroad coupling joints. Diploma.

J. P. Cowing, Seneca Falls, N. Y., for highly finished patent pumps. Diploma.

W. & D. Douglas, Hartford, Conn., Sexton & Webb, agents, 112 South street, for force pumps and hydraulic ram. (Silver medal having been before awarded.) Diploma.

Baron Brothers, 252 Broadway, for a gold-melting furnace. Gold medal.

James Smith, West Broadway, for a fire engine, (No. 34.) Silver medal.

P. A. Burdens, manufacturer, W. H. Gray, agent, 258 Water street, for good ship bolts and spikes. Diploma.

G. B. Hartson, 58 and 60 Vesey street, for a lathe for face turning screws and gear cutting combined, a superior article. Gold medal.

Scranton & Parshley, New-Haven, Conn., for a lathe, (medium size.) Diploma.

Billings & Ambrose, Claremont, N. H., and 129 Water street, for Collins' improved scales. Silver medal.

G. H. Dodge, Dodgeville, Attleborough, Mass., for an improved cop spinning and winding machine. Gold medal.

B. Kreischer, 62 Goerck street, for good specimens of fire brick (Silver medal having been before awarded.) Diploma.

Thomas Godwin, Broadway and Eleventh street, for a throttle valve hose pipe. Diploma.

Billings & Ambrose, Claremont, N. H., for an improved mode of fastening hubs on axles. Diploma.

Leonard Smith, Troy, N. Y., for a buckwheat scourer. Silver medal.

Daniel Burr, for Von Schmidt's centrifugal ship pump. (Gold medal having been before awarded.) Diploma.

T. F. Secor & Co., foot of Ninth street, E. R., for two low-pressure steam engines, on board steamship Ohio, extra finish and well braced. Gold medal.

Crane, Harrison & Co., Newark, N. J., for the best horse power for stationary purposes. Silver medal.

James Black, New-York, for an ingenious steam and air water wheel. Silver medal.

Alfred Hall, Perth Amboy, N. J., for a hand brick machine. Gold medal.

Bernard Sheridan, 45 Ann street, for the best embossing press. Gold medal.

Morgan Loomis, Worcester, Otsego county, N. Y., for a portable smith's bellows. Diploma.

Minors' Work.

Terence Duffy, 218 Elizabeth street, for a model of a steam engine. \$5 and certificate.

Thomas Clough, 10 Amity street, for a miniature steam engine. \$3 and certificate.

Robert Thompson, Jane, corner Washington street, for the workmanship on Dick's printing press. \$10 and certificate.

John Ryan, Twenty-sixth street, corner 1st Avenue, for an hydraulic valve. \$3 and certificate.

MANUFACTURERS' ARTICLES, WEAVERS' REEDS, SHUTTLES, ETC

P. V. H. Van Riper, Paterson, N. J., Kennedy & Gelston, agents, 5½ Pine street, for the best bobbins. Silver medal.

E. J. Skerritt, Pompton, N. J., Andrews & Jesup, agents, 70 Pine street, for the second best bobbins. Diploma.

J. G. Trippe, Trenton, N. J., for weavers' shuttles. Diploma.

A. J. Williams, Utica, N. Y., Andrews & Jesup, agents, 70 Pine street, for a patent jointless wire harness. (Silver medal having been before awarded.) Diploma.

J. A. Gowdey & Son, Providence, R. I., Andrews & Jesup, agents, 70 Pine street, for weavers' reeds. (Silver medal having been before awarded.) Diploma.

T. K. Earle & Co., Worcester, Mass., Andrews & Jesup, 70 Pine street, for machine cards. (Silver medal having been before awarded.) Diploma.

MATHEMATICAL AND PHILOSOPHICAL INSTRUMENTS.

Henry Fitz, 237 Fifth street, for an equatorial telescope. Gold medal.

Ransom Cook, Saratoga Springs, N. Y., for an ore separator, a beautiful application of modern science. Gold medal.

Gregg & Rupp, 120 Water street, for surveying instruments. Diploma.

J. Dixon, Jersey City, for superior black lead crucibles. Gold medal.

Willard Day, Brooklyn, L. I., for a submarine examiner. Silver medal.

James Prentice, 183 Broadway, for mathematical instruments. (Silver medal having been before awarded) Diploma.

NAVAL ARCHITECTURE.

B. Buck & Sons, Baltimore, Md., for the best ship model. Silver medal.

J. W. Griffiths, 668 Fourth street, for the second best ship model. Diploma.

D. D. Badger & Co., 44 Duane street, for the best ship's steerer, Reed's patent. (Gold medal having been before awarded.) Diploma.

J. E. Andrews, Boston, Mass., for the second best ship steerer. (Silver medal having been before awarded.) Diploma.

Stillman, Allen & Co., Novelty Iron Works, a galvanized iron surf boat, life boat and copper man of war life cutter, deserve particular notice, (Joseph Francis' patent,) one of the firm being a manager, are debarred by the rules from receiving a premium.

Chas. Perley, 114 Columbia street, for a ship chain lifter, anchor stopper and side winch. Silver medal.

Blacklin & Slitt, 23 New street, for a tinned iron buoy. Diploma.

E. T. Starr, 13 Cedar street, for an india rubber life boat. Diploma.

John T. H. Kings, Staten Island, for a model of steamship. Diploma.

W. & T. Scanebly, 67 Varick street, for a model of life boat. Diploma.

A. G. Polhameus, Nyack, N. Y., for an adjustable saddle and winch. Diploma.

H. Stanton, U. S. Navy, for an excellent wooden life boat, with india rubber buoys to the outside as well as inside. (Gold medal having been before awarded.) Diploma.

NEEDLE-WORK, EMBROIDERY AND FANCY ARTICLES.

Mesdames Palmer & Farr, 459 Broadway, for the best shirts. Silver medal.

D. W. Canfield, 2 $\frac{1}{2}$ Maiden Lane, for the second best shirts. Diploma.

Mrs. E. A. McNeill, 72 Bowery, for the best embroidered shirt bosom. Diploma.

Mrs. Rebecca Van Houten, 85 Nassau street, for well made shirts and collars, neatly stitched. Diploma.

Brodie & Bell, 61 Canal street, for the best mantilla and ladies' velvet sacks, beautifully embroidered. Silver medal.

Beekman & Cutter, 66 Canal street, second best mantilla and cloaks. Diploma.

Miss Eliza Bateman, 356 Broadway, for best single stitch worsted embroidery. Diploma.

Ann McNespice, Fiftieth-street, best double stitch worsted embroidery. Silver medal.

Henrietta L. Westerfield, 60 Elm-street, second best single stitch worsted embroidery. Diploma.

Miss Ann McNespice, Fiftieth-street, second best double stitch worsted embroidery. Diploma.

10 young ladies of Public School, No. 2, Williamsburgh, for worsted embroidery. Diploma.

Mrs. Sarah K. White, Canaan, Columbia county, N. Y., handsome piano and table covers. Diploma.

Mrs. Thompson, Walker-street, tapestry, double stitch, (Washington.) Diploma.

Miss F. Moore, Newtown, L. I., best embroidered slippers. Diploma.

Mrs. Reisky, 87 Franklin-street, for the best cheneille embroidery done on silk crape and crochet purse. Diploma.

Mrs. A. S. Canning, Gill, Mass., for a lamp mat. Diploma.

Mrs. Sherman, 2 Union Place, for the best smoking cap. Diploma.

Miss D. A. Churchill, 25 Monroe-street, for the best raised worsted work. Diploma.

P. E. Goodliff, 49 Twelfth-street, for the best embroidery on hair cloth. Diploma.

Mrs. Willis Patten, Franklin House, for a child's zephyr worsted sack. Diploma.

Miss Alice Kennedy, 4 Water-street, Brooklyn, L. I., for an embroidered scarf. Diploma.

Mrs. H. B. Jones, Troy, N. Y., for slippers knit without seams. Diploma.

Miss Julia J. Marcet, 84 Orchard-street, for the best frame of silk embroidery. Diploma.

M. J. Drummond, 321 Grand-street, for the best regalia. Silver medal.

E. Combs, 268 Grand-street, for the second best regalia. Diploma.

Mrs. W. Rollings, 191 Spring-street, for the best lady's bonnet. Silver medal.

Mrs. Lazarus Isaacs, 59½ Division-street, for the second best lady's bonnet. Diploma.

Miss Eliza Maton 3 Amity-street, for the best corsets. Diploma.

Miss Magdalene Linherr, 303 Broadway, for the best hair work for jewellers. Silver medal.

Broger & Schuss, 439 Broadway, for the second best hair work for jewellers. Diploma.

Miss M. F. Unold, 41 Oliver-street, for the best framed hair work. Diploma.

Mrs. Emma Ball, Brooklyn, L. I., for a feather tippet, and cuttings in paper, beautifully executed. Diploma.

John Raab, 154 Third-street, for the best shell work. Diploma.

Charles T. Blake, Brooklyn, L. I., for the best artificial flowers. Diploma.

Josepha Earle, Brooklyn, L. I., for flowers made of paper. Diploma.

Rachel Pearson, 178 $\frac{1}{2}$ Bowery, for the best wax flowers. Diploma.

Mrs. L. DeAngelica Wilson, 382 Bleecker-street, for the best wax fruit. Diploma.

Alexander Purdie, 46 Beekman-street, for the best gimps and fringes. Diploma.

Mrs. E. H. Penniman, Brooklyn, L. I., for the best silk quilt. Diploma.

Mrs. M. Jacobus, Brooklyn, L. I., for the best imitation Marseilles quilt. Diploma.

Mrs. Hollerman, 94 Fourth Avenue, for the best knit quilt. Diploma.

Mrs. Sarah Emmons, Deep River, Conn., for the best patchwork quilt. Diploma.

Mrs. Sarah Leech, Jersey City, N. J., for a knitted quilt. Diploma.

rs. S. A. Robertson, 57 Clinton-street, for a woven quilt. Diploma.

PAPER HANGINGS, UPHOLSTERY, ETC.

J. & T. Jones & Smith, 235 Pearl-street, for the best paper hangings. Silver medal.

Pratt & Hardenburgh, 159 Pearl-street, for the second best paper hangings. Diploma.

W. C. P. Bryce, 35 Thompson-street, for a superior specimen of

work in hanging and varnishing paper hangings in blocks for halls. Diploma.

Robert Graves, Brooklyn, L. I., for superior marble paper for halls. Diploma.

William Wisdom, Cleveland, Ohio, for beautiful curled horse hair. Diploma.

White & Kinsman, Barre, Mass., for self-sustaining curtain hangings. Diploma.

P. O'Neil, Gothic Hall, Broadway, for the best spring mattress. Diploma.

E. E. Van Doren, Philadelphia, Penn., for the second best spring mattress. Diploma.

J. W. Miller, 247 Broadway, for the best window shades. Diploma.

E. E. Van Doren, Philadelphia, Penn., for a corn husk mattress. Diploma.

PAPIER MACHE AND JAPANNED WORK.

Hodson & Foster, 3 Dutch-street, for very superior specimens of papier maché, (ornamented.) Silver medal.

J. Cook, 44 Fulton-street, for very superior specimens of papier maché, (ornamented.) Silver medal.

PENMANSHIP.

A. M'Laurin, New-York, for the best specimen of penmanship. Silver medal.

Wm. C. Morrison, Brooklyn, L. I., for the second best specimen of penmanship. Diploma.

PERFUMERY.

William Johnson, 55 Frankfort-street, for the best shaving and fancy soaps. Silver medal.

C. Van Schoonhoven, 73 Liberty-street, for the second best shaving and fancy soaps. Diploma.

Horace E. Swan, Fall River, Mass., N. R. Lincoln, agent, 81 Water-street, for very superior tooth powder and hair preservative. Diploma.

Ely & Co., 71 Chambers-street, for Jenny Lind hair gloss. Diploma.

PIANO FORTES AND MUSICAL INSTRUMENTS.

David I. Van Winkle, 92 West 16th-street, for the best piano forte. Gold medal.

James H. Grovesteen, 122 Grand-street, for the second best piano forte. Silver medal.

Boardman & Gray, Albany, N. Y., for an attachment to the piano forte, called a "dolce campana." Silver medal.

George Hewes, Boston, Mass., for an action for a piano forte, "remarkable for its simplicity." Silver medal.

Wm. Hall & Son, 239 Broadway, for the best Diatonic and Boehm flute. Silver medal.

James Hanley, 549 Broadway, for a double action harp of elegant workmanship. Diploma.

M. Sprenger, 145 Centre-street, for excellent violins. Silver medal.

PLATING.

Coombs & Anderton, 85 Mercer-street, for the best silver plating. Silver medal.

F. Curtis & Co., Hartford, Conn., for the best galvanic plating. Silver medal.

PREPARATIONS OF NATURAL HISTORY.

J. G. Bell, 289 Broadway, for a case of preserved birds. (Silver medal having been before awarded.) Diploma.

John Gray, 157 Grand-street, for artificial eyes of birds and animals. Diploma.

A Fisher, Brooklyn, L. I., for specimens of marine plants. Diploma.

W. Humphreys, jr., Savannah, Geo., for a case of shells. Silver medal.

REGATTA.

Wm. C. Waring, New-York, winner of the race between 19 feet sail boats, Sea Serpent and Quaker. Silver cup, \$10.

Edward Cody, New-York, for the best rowing with one pair of sculls, in 17 foot boat, "Beauty." Silver cup, \$10.

SADDLERY, HARNESS AND TRUNKS.

Owen McFarland, Newark, N. J., for two sets of buggy harness. Silver medal.

James Craven, 32 Canal-street, for well finished coach harness. Silver medal.

Alonzo Nicholas, Kingston, Ulster county, N. Y., for a draught collar. Diploma.

James Russell, 38 Pearl-street, for whips of elegant workmanship. Silver medal.

Thomas Fitz Harris, Brooklyn, L. I., for a lady's saddle. Diploma.

John Cattach, 86 Broadway, for a trunk of superior workmanship. Silver medal.

L. Cantrell, 15 West Broadway, for a lady's trunk and bandbox. Diploma.

John Wilson, 135 Bowery, for the best fire cap. Diploma.

Jacob L. Smith, 139 Washington-street, for the second best fire cap. Diploma.

SIGN PAINTING, &C.

Edwards & Son, 163 Canal-street, for the best sign painting. Silver medal.

John C. Quaterman, Flushing, L. I., for the second best sign painting, well grained. Diploma.

John M. Brown, corner Platt and Pearl-street, for a manuscript sign. Diploma.

H. Goulet, 66 John-street, for the best graining and imitation of wood. Diploma.

James Spencer, 123 Walker-street, for the second best graining and imitation of wood. Diploma.

W. R. Clapperton, 42 Maiden-lane, for the best heraldic painting. Silver medal.

B. F. Cragin, 20 Nassau-street, for the best block letters. Silver medal.

A. & G. Brandon, 2 Tryon Row, for the second best block letters. Diploma.

James Hughes, 71 Fulton-street, for superior sign painting. Silver medal.

Erasmus B. Derby, Brooklyn, L. I., for a good specimen of sign painting. Diploma.

Minors' Work.

George Green, Brooklyn, L. I., for best sign painting. \$5 and Certificate.

Gilbert Graham, Third-street, for second best sign painting. \$3 and Certificate.

RAW AND MANUFACTURED SILK.

Raw.

John M. Summy, Manheim, Penn., for the best 10 lbs. of reeled silk, the thread remarkably round, uniform and clean. Van Schaick premium of \$10, and a bronze medal.

Harriet Summy, Lancaster, Penn., for the second best reeled silk and yarn from perforated cocoons. Diploma.

John M. Summy, Manheim, Penn., for the best bushel of Paphos peanut cocoons. Van Schaick Premium of \$5, and a bronze medal.

Harriet Summy, Lancaster, Penn., for the best bushel of small peanut cocoons. Van Schaick premium of \$5, and a bronze medal.

Manufactured.

J. W. Gill, Wheeling, Virginia, for the best piece of silk, 27 in. wide and 60 yards in length. Van Schaick Premium \$60, and a bronze medal.

J. W. Gill, Wheeling, Virginia, for the best silk for handkerchiefs, 25 yards in length. Van Schaick premium \$20, and bronze medal.

James Millward, Eighth Avenue and Thirty-First-street, for two excellent pieces of satins. Silver medal.

John Fox, Sen, Wheeling, Virginia, for the best plaid silk velvets. Van Schaick premium \$10, and bronze medal.

Julius Hovey, Mansfield, Conn., J. D. Homeston, agent, 293 Pearl-street, for the best sewing silk, 12 lbs. Silver medal.

Turner & Gurley, 84 William-street, for superior sewing silk. Silver medal.

Cleveland & Co., 34 Beaver-street, for handsome specimens of coloured and spooled silk. Diploma.

C. B. Hatch, 97 William-street, for superior oiled silk. Diploma.

C. Court, 27 John-street, for beautiful specimen of silk dyeing. (Silver medal having been before awarded.) Diploma.

Herman Schwietering, 34 Cedar-street, for samples of silk button coverings. Diploma.

SILVER WARE.

J. C. L. Moore, 85 Leonard-street, for the best silver ware. Gold medal.

Wm. Adams, 38 White-street, for the second best silver ware Silver medal.

Minors' Work.

Oscar J. Olmstead, 102 Reade-street, for the best silver cup. \$3 and Certificate.

David B. Olmstead, 102 Reade-street, for a good specimen of chasing. \$5 and Certificate.

STOVES, GRATES AND RANGES.

Cooking Stoves and Ranges.

Jordan L. Mott, 264 Water-street, for the best family range. (Gold medal having been before awarded.) Diploma.

B. Wands & Co., 281 Water-street, for Thatcher's family range. Silver medal.

E. Barrows, 228 Water-street, for a family range. Diploma.

Phillip Rollhaus, 250 Water-street, for a family range. Diploma.

George Pierce & Co., Broadway, for a family range. Silver medal.

B. Wands & Co., 211 Water-street, for a large hotel range, (Cobb's patent.) Silver medal.

Wm. Wheeler, Troy, N. Y., for a large range stove. Silver medal.

Jordan L. Mott, 264 Water-street, for the best wood and coal cooking stove. Silver medal.

N. B. Starbuck, Troy, N. Y., for a superior cooking stove. Silver medal.

Jordan L. Mott, 264 Water-street, for an agricultural boiler. (Silver medal having been before awarded.) Diploma.

B. P. Learned, Albany, N. Y., for a cooking stove. Silver medal.

Elihu Smith, Albany, N. Y., for a stove steam boiler. Diploma.

Anthony Davy & Co., Troy, N. Y., for a summer baker for charcoal or coal. Diploma.

Stoves for Warming, and Hot Air Furnaces.

E. Barrows, 228 Water-street, for the best hot air furnace. (Gold medal having been before awarded.) Diploma.

Culver & Co., 52 Cliff-street, for the second best hot air furnaces. (Silver medal having been before awarded.) Diploma.

E. Waring & Co., Stamford, Conn., for the best portable furnace. Silver medal.

F. L. Hedenberg, 79 Division-street, for the second best portable furnace. Diploma.

B. P. Learned, Troy, N. Y., for the best parlor stove for wood and coal, and cooking. Silver medal.

John Liddle, 220 Water-street, for the second best parlor stove for coal. Diploma.

Anthony Davy, & Co., Troy, N. Y., for the best parlor stove for wood. Silver medal.

Anthony Davy & Co., Troy, N. Y., for a Franklin. Diploma.

Jordan L. Mott, 264 Water-street, for an improved ventilating radiator for halls and schools, with wood or coal. (Gold medal having been before awarded.) Diploma.

L. Wood, 237 Water-street, for the best cast iron radiator for parlors. Silver medal.

W. Race & Co., Seneca Falls, N. Y., for the best air tight stove with regulator. Silver medal.

Anthony Davy & Co., Troy, N. Y., for a sad iron heater. Diploma

SURGICAL INSTRUMENTS.

Watt & Patterson, 1 Murray-street, for a spring block truss. Silver medal.

TOBACCO AND ITS MANUFACTURES.

George T. Williams, Lynchburg, Va., Henry Ludlam, tobacco agent, 151 Front-street, for the best manufactured chewing tobacco. Silver medal.

Jas. Saunders, Lynchburg, Va., for superior chewing tobacco. Diploma.

J. & T. Kneil, Westfield, Mass., Holt & Palmer, agents, 223 Front-street, for cigars well made and of good material. Diploma.

WIGS AND TOUPEES.

Wm. A. Batchelor, 4 Wall-street, for the best wig. Silver medal.

W. L. Clirehugh, 179 Broadway, for the second best wig. Diploma.

Mrs. E. Peckham, 7 Chambers-street, for ladies' curls. Diploma.

WOOLEN GOODS.

Dorastus Kellogg, Skaneateles, N. Y., Wolcott & Slade, agents, 13 Broad-street, for the best black broad cloth. Gold medal.

Globe Mills, Utica, N. Y., Trimble & Co., agents, 38 Broad-street, for the second best black broad cloth. Silver medal.

D. W. Plumb, Derby, Conn., McCurdy, Aldrich & Spencer, agents, 30 Broad-street, for black cloth. Diploma.

Burlington Mills Co., Burlington, Vt., for the best black cassimeres. Gold medal.

Seneca Woolen Mills, Seneca Falls, N. Y., Stanton, Barnes & Hamilton, agents, 21 Broad-street, for the second best black cassimeres. Silver medal.

Millville Manufacturing Co., Millville, Mass., Fearing & Hale, agents, 55 Exchange Place, for the best fancy cassimeres. Gold medal.

Dorastus Kellogg, Skaneateles, N. Y., Wolcott & Slade, agents, 13 Broad-street, for the second best fancy cassimeres. Silver medal.

Jas. Waterhouse, Centreville, Warwick, R. I., McCurdy, Aldrich & Spencer, agents, 30 Broad-street, for fancy cassimeres. Diploma.

Bay State Mills, Lawrence, Mass., Wolcott & Slade, agents, 13 Broad-street, for the best woolen long shawls. Gold medal.

Dorastus Kellogg, Skaneateles, N. Y., Wolcott & Slade, agents, 13 Broad-street, for the second best woolen long shawls. Silver medal.

Monock & Burney, Lexington, G. Patterson & Co., agents, 43 and 45 Broad-street, for superior printed turkeri shawls. Diploma.

Duncan & Cunningham, Franklin, Essex county, N. J., McCurdy, Aldrich & Spencer, agents, 30 Broad-street, for embroidered shawls and embossed piano covers. Silver medal.

Wm. Duncan & Son, Franklin, Essex county, N. J., Richardson, Watson & Co., agents, 43 Exchange Place, for printed shawls. Diploma.

Gilbert & Stevens, Ware, Mass., Thomas & Dale, agents, 53 Exchange Place, for superior white flannels. Silver medal.

Nesmith & Co., 50 and 52 Pine-street, for superior blankets. Diploma.

Ballard Vale Manufacturing Co., Ballard Vale, Mass., Stone & Co., agents, 48 Exchange Place, for stuff goods. Silver medal.

Giles & Son, Providence, R. I., G. R. Sprague & Co., agents, 68 Broad-street, for worsted yarn. Diploma.

John Morrow, Paterson, N. J., for paper-makers' endless felt. (Silver medal having been before awarded.) Diploma.

MISCELLANEOUS.

George H. Penfield, 19 Nassau-street, for an improved method of lightening vessels over bars. Diploma.

D. Lockwood, 642 Broadway, for a clothes-drying reel. Diploma.

Pacific Rock Salt Co., B. Ransom & Co., agents, 100 Wall-street, for superior specimens of salt. Diploma.

A. McDonough, Philadelphia, Penn., for an invalid chair. Silver medal.

Geo. Clayton, 232 6th Avenue, for a bedstead and portable divan. Diploma.

P. Proeschel, 108 Greene-street, for three cushions. Diploma.

Wm. Stoutenburgh, 114 John-street, for brass and iron wire show cloak, cape and cap stands. Diploma.

Josiah Dunham, Boston, Mass., for cotton sash cord. Diploma.

W. H. Kemp, 95 Canal-street, for superior gold leaf. Silver medal.

H. W. Chamberlin, Pittsfield, Mass., for an improved draughting board. Diploma.

Henry J. Kip, Newark, N. J., for the best horse shoes. Diploma.

S. N. Blake, Hudson, N. Y., for the second best sample of horse shoes. Diploma.

T. Smith & Co., 77 Fulton-street, for water coolers. Diploma.

John Jones, Bristol, Conn., for mops and mop irons. Diploma.

F. G. Richardson, 107 John-street, for wire cloth. Diploma.

J. C. Derby, 61 Gold-street, for a painter's jack. Diploma.

James D. Mowrey, Norwich, Conn., for a self-acting mirror. Diploma.

W. E. Rose, 37 Reade-street, for beautiful specimens of gold and silver mounted canes. Silver medal.

Charles Stearn, Brooklyn, L. I., for a dentist's press. Diploma.

O. Schröder & Co., 26 John-street, for a child's theatre. Diploma.

Table & Selchow, 47 Eldridge-street, for hat boxes. Diploma.

John A. Ethridge, 166 Reade-street, for milk cans. Diploma.

J. Gray, 157 Grand-street, for artificial eyes. Diploma.

C. & J. Davis, 23 Nassau-street, for zinc weights. Diploma.

John Dick, 132 Nassau-street, for patent boot shanks. (Silver medal having been before awarded.) Diploma.

C. W. Ingraham, 53 Franklin-street, for adjustable sliding and spring shanks. Diploma.

Joshua Shaw, 142 Nassau-street, for glazier's diamonds. Diploma.

J. Johnson, 111 East Eighteenth-street, for gas fittings. Silver medal having been before awarded.) Diploma.

Calkins & Darrows, 28 Maiden-lane, for umbrellas and parasols. Diploma.

John Matthews, Twenty-sixth-street, corner Seventh Avenue, for soda water stand. Diploma.

M. B. Bigelow, 185 South-street, for gothic bird cage. Diploma.

W. W. Riley, Columbus, Ohio, for a self adjusting buckle. Silver medal.

Nathaniel Fenn, 45 Sixth Avenue, for fancy bellows. Silver medal.

Miss E. Fenn, 45 Sixth Avenue, for inlaid bellows. Diploma.

E. Satterlee, Albany, N. Y., for cast iron mirror frames highly gilt and burnished. Silver medal.

A. D. Fisk, 209 Water-street, for metallic burying cases for preserving bodies. Silver medal.

Reed & Co., 52 White-street, for specimens of roofing slate. Diploma.

John Bruce, 24 Platt-street, for copper and steel engravers' plates. (Silver medal having been before awarded.) Diploma.

Coombs & Anderton, 85 Maiden-Lane, for a copper sash. Diploma.

Guilford Manufacturing Company, Guilford, Conn., for cast iron flower pot stands. Diploma.

John Byram, Dover, N. J., for a large specimen of iron ore. Diploma.

M. S. Salters, Newark, N. J., for specimens of wrought iron made with anthracite coal by a new process. Silver medal.

Williams & Barton, East Hampton, James M. Weed, agent, 179 Pearl-street, for a maslin kettle. Diploma.

Andreas & Son, 69 Greenwich Avenue, for an improved coal screen. Diploma

E. H. L. Kurtz, 291 Bowery, for a baby jumper and swing. Diploma.

Michael McWeeney, 124 Leonard-street, for a model of a portable parlor green house. Silver medal

Homan Hallock, for specimens of oriental type cutting on steel punches. Silver medal.

A. Brower & Co., 236 Water-street, for the best candle moulds. (A Silver medal having been before awarded.) Diploma.

Farr & Briggs, 30 Rector-street, for the second best candle moulds. Diploma.

Minors' Work.

John F. Ward, Jersey City, N. J., for surface plates. \$5 and Certificate.

Samuel Conely, 29 Chambers-street, for a composition picture frame. \$3 and Certificate.

J. Irwin, 243 Tenth-street, for a well mounted cane. \$3 and Certificate.

William Rankin, 361 Greenwich-street, for marble book and stand. \$3 and Certificate.



REPORTS OF COMMITTEES.

REPORT OF THE AGRICULTURAL COMMITTEE.

The committee of arrangements, appointed by the board of agriculture of the American Institute, to conduct the exhibition of cattle for 1849, submit the following report :

The exhibition was held at Corporal Thompson's, known as Madison Cottage, corner of 23d-street and 5th Avenue, on the 10th and 11th days of October. The grounds were in good order, of an even surface, and well tufted with grass. The erection of sheds for cattle and horses, pens for sheep and hogs, and accommodations for poultry, were ample and well arranged.

The number of entrances were larger than at any previous show, and the animals of a better quality, with the exception of horses, which were not numerous, but some specimens were very fine. We are indebted to His Honor, Mayor Woodhull, for permission to use Madison Square, obtained through our friend James Depeyster, Esq. It was a great convenience, adding much to the liberty of the horned stock, and affording the horses ample room for display and exhibition.

The number of visitors was larger on the first day than ever before, the weather being only tolerably good ; the second day was very unfavorable, raining most of the time, which very materially diminished the attendance. A large number of the judges, regularly appointed, were absent, but their places were filled by competent and

faithful men, who discharged their duty with energy and attention, notwithstanding the inclemency of the weather, for which we tender them our thanks ; we believe their awards gave general satisfaction. We were honored on the first day by a visit from many distinguished agriculturists, among them the President and Corresponding Secretary of the State Agricultural Society. Mr. Thompson, the proprietor of the grounds, afforded us every facility in his power. There was several delegated committees from various county Agricultural Societies in attendance. The weather throughout was extremely unfavorable ; had it been otherwise, we have reason to believe that the number of entrances would have been greatly augmented.

The experience of the year has imparted to your committee information in regard to details and arrangements which will be useful in the management of future exhibitions, and they would recommend an early meeting of the board of agriculture, where all such facts and suggestions as are useful may more properly be made. Respectfully submitted.

L. G. MORRIS,
CHAS. HENRY HALL,
THOS. BELL,
Committee.

The awards, according to the decision of the judges, will be found in the list of premiums of the 22d Annual Fair.

REPORT ON PLOWING AND SPADING.

AMERICAN INSTITUTE, }
22d Annual Fair, 1849. }

Agreeable to the published programme of the business of the Fair, on the fourth day of October, at 10 o'clock in the forenoon, Captain Hoffmire, of the steamer Suffolk, received on board, at the point of the Battery, the committee of the Institute and some of its guests, bound to Flushing, to unite there with the Agricultural Society of Queens county, Long Island. The morning threatened a continuance

of a north-east rain storm, so much so as to prevent many citizens from joining us. The President of the Institute, the Hon. James Tallmadge, and Ex-President John Tyler, with Mr. Gardiner, of Gardiner's Island, Mr. Ogden, of Chicago, the Recording Secretary of the Institute, several managers of the Fair, Hon. David Banks, Alanson Nash, Esq., Hon. William Mitchell, Judge of the Superior Court, Sylvanus Miller, Esq., W. W. White, Esq., city inspector, Martin Ellsworth, Esq., of Windsor, Conn., I. Blackwell, Esq., Hon. Singleton Mitchell, of Plandome, brother of the Hon. Samuel L. Mitchell, so well known for his enthusiasm in the cause of learning and the arts,—and others. Some members of the great Pomological Convention. A band of nineteen musicians politely ordered on this occasion to the field of action, by Col. Crane, of Governor's Island were on board. On the way to the field, the threatening clouds began to separate, and during the rest of the day, pleasantly shaded the plowmen, the spadesmen, and the company. On arriving at Flushing, your committee were placed by order of the Queens county Society, in a large covered vehicle which was drawn by ninety-eight oxen, in pairs, attached to the chains, through Flushing to the field. It was a pleasant sensation to experience the immense power of that team on the way, and the reflection that right ahead moved an hundred thousand weight of beef, available at the termination of the agricultural labors of those noble creatures. The rain which had fallen rendered the sod and soil of the field in excellent condition for the plow and the spade.

The arrangements made by the Hon. John A. King, President of the State Agricultural Society, in conjunction with his committee and A. G. Carle, Esq., the Secretary, and our committee were all complete. The plow-lands staked off in parallel rows, contained each one-eighth of an acre. Various plows were in competition, among others a *Starbuck* plow, of Troy, one of the same mould as that *star of a plow* now shining brightly in the Castle Garden.

There being a citizen on the field who had filled the Presidential seat of the Republic, he was invited to put his hand to the first plow and open the first furrow. With perfect cheerfulness the Ex-President, John Tyler, did so, and joined Morris Kelly, Mr. King's plow-

man, in first putting the share into mother Earth. A time honored practice for the most distinguished citizen to lead in the field of Agriculture, much more so than in those of battle.

For the result of the contest of the plow we refer to the official report of the committee in charge of that service.

We next observed with pleasure, in a distant part of the field an oblong square, formed by a triple row of men—some hundreds—which reminded us of those human citadels found by Wellington at Waterloo, on which the élite of the breast-plated and helmeted cuirassiers of Napoleon broke to pieces like the surges on a rocky coast. We visited the square and being by virtue of office, admitted within, we had the pleasure to see that great *garden maker*, the spade, in the hands of athletic men, doing its capital work. During these operations, the United States army band of music cheered the work with their accurate, sweet, and yet blood-stirring notes from all the chosen instruments of military music. To say that the men who handled the plow and the spade felt the influence of the presence of respectable fellow-citizens, that of the music or that of several fair ladies, who from their carriages, were looking earnestly on, is not saying enough. Find us if you can an honest man who under such a respectful and cordial view does not feel his heart swell with a pure and just pride and his strong muscles thrill with lawful pleasure

Who so indifferent to the approving smiles of his fellow men, but is rendered happier and better by it, but if ladies too look on, his nerves can have no greater tension in the power of his agricultural labors. Take all this assembled multitude away and tell him he will never see another American Institute, or a Queens County Society, or any body else to look at him while he toils, and his spirit is instantly fallen and by continued neglect will fall to the lowest possible point. To bring men to battle, you have always been obliged to dress them gaily and well, to erect plumes on their heads, polished hemlets, to give them bright bayonets and polished swords, to stir them up by all the potent sounds of clarion, drum, and trumpet, in order to make them do *their field work well!* And when they have done it well as they did at Waterloo, perhaps it may be said that their bodies and their blood

were put to no use so profitable as the preparing that field for the remarkably fine crops of wheat which have continued to grow upon it ever since. What is the reason said a European farmer to an agricultural chemist that such a field has for almost two centuries produced such fine wheat? The chemist on analyzing the soil attributed it to the bone manure furnished by the killed on that spot which must have been a battle field.

The committee saw with great pleasure the very beautiful display of vegetables, fruits and flowers in the large tent of an hundred feet diameter. Some of your committee felt an emotion of surprize that this rich collection had been made in a small circle of the west end of Long Island. But upon reflection the surprize vanished. Within sight of that tent the forefathers of the Princes had a fine nursery of good things of the farm and garden, and so long ago, that at the time of the battle of Long Island in 1776, some rank and file of the British army attempted to spoil that nursery of Prince, but to his lasting honor, the British commander placed guards around it and saved it from all injury. Others of great merit have arisen long since in the same circle; among these, the amiable, intelligent and prosperous family of Parsons, remain highly distinguished. A branch of that family is in the same dwelling where the celebrated founder of the religious sect, the Friends, Fox, was once entertained; and near this well kept mansion, large trees still stand, beneath whose shade he lectured his little circle of hearers.

By these good citizens, and by the Messrs. Mitchells, whose estates furnished the field of plowing, many of your committee, with the Hon. Mr. Tyler, and several other distinguished men, were most hospitably entertained.

Your committee cannot forbear to add that on this occasion they renewed their impressions of the great value and importance of this noble Island: Being 120 miles in length, a clear sea all around it, its climate is very distinctly milder than our adjacent main land. Accessible everywhere, close on the very entrance of our great city, capable by modern science, and by vessels, and by railroads of amending scientifically and perfectly every acre of her land. We believe this

Long Island destined, in the life time of our young men to become the most lovely residence and garden to be found between the north pole and the equator on our side of the Atlantic. We have our eye, while we say this on the islands of the south, but we wish to be understood as decidedly preferring about latitude 40° north for the climate, and if interest should prevail over this matter of taste, yet we cannot divorce this beautiful but long neglected island from our great and growing metropolis, the city of New-York. All which is respectfully submitted to the American Institute by your committee.

H. MEIGS, *Recording Secretary,*
and Secretary of the Farmers' Club.

• Oct. 5, 1849.

TESTING OF PLOWS.

The committee appointed by the American Institute to superintend the examination and testing of plows, report :

That on the 3d of October they met at the village of Flushing, Queens county, and proceeded to Lindon Hill, the elegant residence of Edward E. Mitchell, whose grounds had been selected by the Queens County Agricultural Society for the testing and plowing.

We cannot omit expressing our obligations to Mr. Mitchell, for his attentions and kindness, and the willingness with which he placed his men, teams and implements at our disposal.

The Institute instructed us to award premiums for the best and next best plows, combining the greatest number of necessary requisites to plow furrows 16 and 12 inches wide by 8 and 6 inches deep.

W

The committee determined that it would select the person to hold the plows, who should hold all in each class, and that but one team should be used. Thus each plow had the same opportunity of having justice done.

Of the class of 16 inches wide by 8 deep furrow, the following plows were tested and with this result :

Bergen,	B. Myer, Newark, N. J.,	525 lbs.
Eagle F.	John Mayher & Co., New-York,	475 "
No. 5.	N. Starbuck & Son, Troy, N. Y.,	550 "
No. 4.	John Moore, New-York,	600 "
No. 20.	do do	650 "
No. 9 ² .	B. Myer, Newark, N. J.,	500 "

Of the second class, the following is the result :

Bergen,	B. Myer, Newark, N. J.,	400 lbs.
	B. Myer, do do	400 "
Eagle D.	John Mayher & Co., New-York,	350 "
Eagle F.	do do do	325 "
No. 5.	Starbuck & Son, Troy, N. Y.,	425 "
No. 19 ² .	John Moore, New-York,	300 "
No. 20.	do do	375 "

We accordingly recommend the premiums to be awarded as follows:

For the plow combining the greatest number of necessary requisites to plow a furrow 16 inches wide and 8 inches deep,

To John Mayher & Co., New-York, for the best Eagle F. Silver cup.

To B. Myer, Newark, for the second best No. 9². Silver medal.

For the plows of the 12 inches wide and 6 inches deep furrow,

To John Moore, New-York, for the best No. 19². Silver cup.

To John Mayher & Co., New-York, for the second best Eagle F. Silver medal.

Of the first class, the plows were all held by Mr. William Mitchell, and by Mr. G. G. Weeks of the second class, both experienced plowmen.

The ground was dry and hard, and the plowing was difficult. We fancy that in every case the dynamometer indicated more resistance than would be found in general plowing.

The committee would respectfully suggest that the Institute make some effort to produce some improvement upon the dynamometer, or a new mode of testing the power necessary to move the plow. Very little reliance can be placed on those now in use. The least difference in the surface of the land and small obstacles, cause great and constant variations in the index. We believe that the ingenuity of our countrymen, if once turned in this direction, would produce an instrument which would indicate with much minuteness and correctness the power necessary in the draft of the plow.

By order of the Committee,

ALBERT G. CARLL, *Chairman.*

Castle Garden, 4th of October, 1849.

HORTICULTURAL REPORT

OF THE TWENTY-SECOND ANNUAL FAIR OF THE AMERICAN INSTITUTE.

In presenting the Report of the Horticultural Department of the Twenty-second Annual Fair, there are many causes for congratulation. However much praise may have been bestowed, and justly too, on former exhibitions, the Twenty-second Annual Fair evinced beyond all others the most cheering and gratifying evidences of that steady improvement which has characterized the progress of the American Institute since the day of its foundation.

It is much to be able to say of any institution, that its progress has been steadily onward. In taking a retrospect of the past, and viewing with a scrutinizing eye the ground that has been gone over with so many toilsome steps, it is a deep gratification to know that our labor has not been in vain. To trespass for a moment on the province of metaphor: it is now some twenty-two years since the American Institute entered into possession of a wild, rugged, and uncultivated domain, overrun with brambles and pernicious weeds, but still fair to look upon, possessed of great natural beauty, and abounding in all the elements of fertility and usefulness. The Institute had the foresight and judgment to employ these elements judiciously and perseveringly, in spite of all obstacles. And what is the result? Why, after twenty-two years of toil and labor, we behold a scene full of the most interesting associations. We see that wild domain hedged in and smiling with beauty. The brambles and weeds have mostly disappeared, and in their places we see the grasses, and grains, and fruits, and whatever nourishes and sustains man's body; and the glorious flowers, that fill his soul with emotions of beauty. The grassy meadows abound with highly-improved domestic animals; the

water of the running streams, in both its dense and rarer forms, lends its mighty force for the propulsion of ingenious and complicated machinery, by which is manufactured myriads of articles for the comfort and use of man : whatever is useful, whatever is ornamental, whatever is beautiful, may here be seen in a progressive stage of improvement, and the busy hum of life and activity falls pleasingly on the ear. This is not altogether metaphor.

In accordance with what is here shadowed forth, I noticed with pleasure, during the last Fair, a marked decrease of those mere trifles which heretofore have seemed to me like so many excrescences. I apprehend that there was not only a larger number of articles on exhibition than on former occasions, but also *more* of intrinsic value and real utility ; more that were new and important ; more marked and decided improvements in machinery, in agricultural implements, and other articles ; and *fewer* of those mere gewgaws and catch-traps, which have always struck me as being unworthy of a place in a great exhibition of the products of American ingenuity and skill. In these respects, the Twenty-second Annual Fair must be considered the most commendable that has yet been held, and presents, as before remarked, many causes for congratulation ; and I here take occasion to pay a well-merited compliment to the Board of Managers, whose able and judicious management contributed very materially to bring about this most desirable result. So much for the Fair as a whole.

I shall now offer some remarks on the Horticultural Department, the more immediate object of this Report. Where so many things present themselves, and all with nearly equal claims to notice, it is difficult to decide where or how to begin, or to observe such an order as will bring this Report within reasonable limits.

In regard to surface covered, this was certainly the largest Horticultural exhibition ever got up under the auspices of the American Institute ; and in respect to quality, I claim for many articles a decided advantage over any similar articles that have ever been exhibited here before. This is strong language ; but I understand perfectly well the meaning of what I utter, and in the above case I use every word in its strongest and broadest sense. As respects the general disposition

and arrangement of the articles, and the effect produced by such arrangement, it becomes me not to speak ; and, indeed, it is not necessary for me to do so, for the Board of Managers, the members of the Institute, and the public generally, had abundant opportunities to judge for themselves.

In enumerating the different articles, for the sake of brevity I shall only particularly notice those which presented some peculiar excellence. Of agricultural productions, the first of all in importance is our great staple product, *Indian Corn*, the display of which was very large. I have reason to believe that finer corn has never any where been seen. The Chairman of the Committee of Judges, venerable alike for his years, his knowledge of the subject, and an experience as wide as the extent of our own broad land, pronounced some specimens equal to the best he had ever seen ; in fact, all who saw them gave them at once the highest character, and were most eager to procure seed of them. Though only a few specimens possessed this high degree of excellence, yet there were many other samples of very fine quality. When we take into consideration the vast importance and usefulness of this staple product, the improvement recently effected in it and the lively interest it has awakened in the farmer's mind should be studiously and perseveringly encouraged and rewarded. We must still continue to give it the first consideration. The *tallest* specimen on exhibition was nearly *thirty* feet in height ! the next, some *twenty four* feet, and several others from thirteen to fifteen feet. There were also a few samples of *Egyptian Corn* on exhibition ; but whether this is of sufficient importance to be much encouraged I consider doubtful.

Of *Wheat* there was a large number of samples, several of them being of great excellence. The judges were furnished with a chronometer, and went through the interesting process of weighing the various samples ; and as some evidence of their quality, I will just mention that the weight varied from *sixty* to *sixty-five* pounds to the bushel. Of the different varieties the Bergen was considered the best, and this character, I believe, it has held since the time of its introduction.

Of the various samples of *Rye*, all were esteemed good, and some of great excellence. The greatest weight was sixty-three pounds and a half to the bushel.

Of *Oats* there were several samples of superior quality, weighing from thirty-eight to forty-two pounds to the bushel. The Poland variety of this important grain gave the greatest weight per bushel.

There were several samples of *Buckwheat* of fine quality, the greatest weight being fifty pounds to the bushel. The practice of weighing the samples of grain presented for competition is a useful one, and much to be commended, for it puts us in possession of important statistical information. I therefore hope the practice will be continued.

In this connection it will be proper to state that there was an exceedingly large quantity of flour and meal, much larger, indeed, than I have ever seen at any preceding Fair. In quality nothing could be finer; two samples were prepared with surprising care, and perhaps surpassed any thing of the kind that has ever before been made in this country. There were many other samples of great excellence, and so nearly alike in quality that it was found to be difficult to distinguish any difference between them. I mention this fact in justice to exhibitors, as well as to show the closeness of the competition, and the great care which must have been bestowed upon the preparation of these samples of Flour.

Of *Meal*, the display was large, but the quality various. It so happened that the meal that was best dried was not the best in quality; and the best meal on exhibition was not dried at all. Of the two methods of *steam drying* and *kiln drying*, it seems to be admitted that steam drying by Stafford's process, possesses the greatest advantages, and accomplishes the purpose most effectually; and it cannot but be regretted that a process possessing so many merits should have been exhibited on a meal that was considered only second rate in quality. This subject is one of the very first importance, even in a national point of view, and should not for a moment be lost sight of. When we shall have succeeded in discovering some process of thoroughly drying meal, so as to prevent the occurrence of any chemical change, and at the same time preserve all its nutritive qualities,

we shall have secured a permanent foreign market for a product which we can raise in vast abundance and in the greatest perfection. It may be that this process has already been discovered ; indeed, it seems to me that it has. Much might and ought to be said on this subject, but my limits will not permit. In addition to flour and corn meal, mention must be made of superior samples of *oat meal*, *samp*, *hominy*, *grits*, *farina*, &c., got up in beautiful style.

I will now proceed to the productions of the *Dairy*. Of *Cheese*, the display was exceedingly large ; much larger than at any preceding Fair. As regards quality, I venture the remark, that while there was one sample of the *best*, there were also two or three samples of the *worst* American Dairy Cheese ever seen at any exhibition of the American Institute ; between these two extremities the quality varied exceedingly. The best sample of American Dairy was well cured, and of exceedingly fine flavor ; the worst was intolerable. I cannot imagine for what purpose it was made ; certainly not to be eaten ; perhaps to keep out a certain insect.

Of *Imitation English Dairy* the samples were all good, and some exceedingly fine. One lot, of great excellence, came in near the close of the Fair, and consequently too late for competition.

Among the rest, one Mammoth Cheese, from Austin, Ashtabula county, Ohio, must not be overlooked, if it were possible to overlook a thing of such monstrous size. The weight of this Cheese was *seventeen hundred and fifty pounds* ! without doubt the largest ever made. The labor of making, pressing, and curing it must have been immense. Notwithstanding its great size, it was of good quality, and perhaps only required a little more ripening to make it a first-rate cheese.

The display of *Butter* was rather larger than we usually have, and there was not an indifferent sample on exhibition. All were good, many first-rate, and two at least most exquisitely flavored. It is gratifying to perceive each year some perceptible improvement in the products of our Dairy, and to know that the subject is receiving that attention which its importance demands.

I will next pass to *Vegetable Productions*, the display of which was not only immensely large but really first-rate. Owing to their great number, an enumeration cannot here be attempted; yet there are some things that cannot be overlooked. There were many samples of excellent *Potatoes*, both for cattle and the table. In one case two crops in succession were taken from the same ground, which is noteworthy. There were several samples of seedling *Potatoes*, but, with one exception, they were not remarkable for any great excellence. Of things new, the most striking was an odd-looking *Squash*, called the Sailor's Delight, said to be fine. Of *Beets*, both for the table and cattle, the display was large and excellent, and the same may be said of *Parsnips* and *Carrots*. Of *Onions* the display was not large, but one lot was especially fine. The display of *Squashes* and *Pumpkins* was immense, from a Mammoth down to a Vegetable Marrow. But how do justice to a long list, comprising, in addition to the above, *Celery*, *Turnips*, *Salsify*, *Egg Plants*, *Peppers*, *Globe Artichokes*, *Cabbages*, *Green Corn*, *Beans*, *Tomatoes*, *Okra*, *Cucumbers*, *Watermelons*, *Citron Melons*, *Sweet Potatoes*, &c., &c., all excellent of their kind?

In *Hops*, no improvement upon former exhibitions was observable, in respect either of quantity or quality. We must hope better things for the future.

I will here simply enumerate some miscellaneous articles, such as superior *Mustard*, excellent *Honey*, very choice native *Wine*, from the Catawba grape, *Cider*, *Annatto*, *Madder*, *Hemp*, *Guano*, *Fertilizing Powder* for plants, &c., &c., of which I have no time to take further notice at present.

Of *Pickles* and *Preserves* the display was very creditable. The articles of this description were, most of them, excellent, especially the *Pickles*, which were got up with much taste.

I shall next pass to the *Fruit*. Leaving out of consideration the specimens exhibited at the Congress of Fruit Growers, the display this year, on the whole, was an advance upon preceding exhibitions, notwithstanding the partial failure of crops in some sections. Of *Apples*, the show, in point of numbers, did not, perhaps, exceed that

of last year, yet the specimens, in many cases, were certainly finer. It is worthy of notice that there were several seedling Apples of great excellence; one sample was thought to be superior to many old and esteemed varieties. Of *Pears*, the display was not, perhaps, quite equal to that of last year; yet two exceptions must be made, embracing the Vergouleuse and Duchesse d'Angoulême, of which there was a magnificent show. There was one sample of seedling Pears of very fine quality; and it is an interesting fact, worthy of being noted here, that we had several specimens from the original Seckel Pear, which is still standing and in tolerable health.

The display of *Peaches*, *Plums*, and *Nectarines* was exceedingly fine; by far the best we have ever had. It is worthy of remark, that the best *Peaches* and *Nectarines* were seedlings; they were of the first quality, being very large and exquisitely flavored. Never before have we had so much seedling fruit of decided merit. Of *Quinces* the show was good, but not better than has been usual on former occasions.

The display of *Grapes* was exceedingly grand; something to be noted and remembered. The show of *Foreign Grapes* was magnificent; I doubt whether a finer has ever been seen. The number of varieties was very large, and the various samples were of great excellence. The display of *Native Grapes* was also large, and of the very first quality. I venture to say that no *Isabella* or *Catawba* *Grapes* ever surpassed them; one sample of *Isabellas* was much the finest I have ever seen, in regard to both quality and size.

I must not omit to mention, in this connection, a case of *Wax Fruit*, most beautifully and truthfully executed. These wax specimens were so like the real fruit that many persons were completely deceived in regard to their true nature; and, indeed, when some of the wax specimens were placed by the side of the natural fruit represented, it required nice discrimination, even in experienced persons, to distinguish between the wax and the natural fruit. There can be but one opinion in regard to the great utility of these imitations of fruit, and they should be duly encouraged.

Altogether, the exhibition of Fruit was superb, and a source of great gratification to all who beheld it ; more especially is this true of the large and exceedingly fine display of the luscious Peach and Nectarine, and the imposing show of Grapes, the large and tempting clusters of which were a theme of delighted admiration to every beholder.

I shall now take a glance at the *Flowers*, those loved objects, over which I so delight to linger. The weather at the opening of the Fair was most unpropitious for the development of these delicate objects, and I was not a little apprehensive that the display would prove to be something of a failure ; but the fury of the storm abated in time to avert so deep a mortification, and the genial rays of the sun brought out the Flowers in all their gorgeous attire. Thus it often happens, that what at first seemed, to our finite vision, only fraught with evil and misfortune, turns out, in the end, to be full of the utmost beneficence. A wise Providence reigns over all.

I have no desire to exaggerate in any particular the character or merits of the exhibition which has just closed ; but I must nevertheless, in justice to the commendable zeal evinced by the exhibitors, claim for the display of Flowers the high distinction of being, without the semblance of exception, by far the greatest that has ever been seen on any one occasion in New-York. I do not mean alone that it was the largest, but also decidedly the best in every sense of the word ; and I claim for it in some particulars the great merit of being of a higher character than any for exhibition. I have strong hopes that in a very few years our exhibitions of Flowers will reach the high standard already attained by our Boston and Philadelphia friends. Too much praise cannot be bestowed upon that spirit of emulation which enabled us to keep up a blaze of Floral beauties during the whole *four weeks'* continuance of the Fair. For this happy result we owe exhibitors a large meed of praise, and I take infinite pleasure in bestowing it. This is about all that they get to reward them for their labor and losses, and I desire that they should receive a full measure of it. The taste for the cultivation of Flowers is no doubt increasing among us, but its progress is painfully slow. This may be attributed in a great measure to a want of sufficient and

proper stimulus or encouragement, to want of public spirit, and to another cause far less honorable to human nature.

In taking a glance at the exhibition of Flowers, the attention is first attracted by the exceedingly large and grand display of *Dahlias*, much the finest I have ever seen, and never surpassed even in Philadelphia. A more beautiful sight than a fine display of Dahlias is rarely to be met with. The bold and symmetrical form, and the great diversity of colors, from the most brilliant to the softest and most delicate tintings, all blending harmoniously together, produce in the mind emotions of lively admiration. Among the Dahlias were some of the most exquisite show flowers I have ever seen, and at the head of the list I must place, when well grown, *L'Empereur de Maroc*.

But the Dahlia must give place to the *Rose*, the "Queen of Flowers," certainly among the first in all the elements of beauty, and endeared to us by a thousand fond associations. Of this most lovely flower the display was grand and well sustained, embracing all the best varieties, alike beautiful for their form, size, color, and exquisite fragrance. Perhaps there is no single flower more highly and universally esteemed; there are some more brilliant and showy, but there is none which we *love* like the Rose.

The display of *Bouquets* was magnificent. They were formed of Roses and other choice flowers, and made up with great good taste. A parlor stand of Bouquets, made up by a lady, was particularly beautiful and in excellent taste. A flat Bouquet, made up in the Parisian style, was unique in its way, and much admired. There were numerous others, all very pretty, and several exceedingly large and beautiful.

But what shall be said of the *Pyramids*, and *Temples*, and *Conservatory Stands*, and other Ornamental Designs? To describe them here would take up too much space; yet I am strongly tempted to do so. Suffice it to say that no display at all comparable to it was ever before seen in New-York. Many of these designs were got up at great expense by Mrs. A. Henderson, who deserves infinite praise for her taste and ability, not less than for her patience and per-

severance in decorating them anew with fresh flowers every few days during the continuance of the Fair. One of her designs was the most elaborate and finished that I have ever seen, and all exhibited the great elements of proportion, harmony, and unity of conception to such a degree as to evince no less genius than originality and taste.

The *special* exhibition of Roses and Dahlias on Monday, the 9th, was not quite equal, in one particular, to the splendid show of last year; there were not so many Roses. This was owing, in great measure, to the fact that I had expressed a determination to postpone the exhibition on account of the unpropitious weather. But though there were not so many Roses, they were equally fine, and in this respect have never been surpassed. The display of Dahlias exceeded that of last or any other year, and I hope the same remark may be made with equal truth at every succeeding exhibition. The first premium Dahlias were the most exquisite I ever saw; the Roses were surpassingly beautiful, and presented a sight which will long be remembered. If a person were about to make a small but choice collection of Roses and Dahlias, I doubt whether the same number of varieties of each of greater beauty could at present any where be found; and for the benefit of such I append a list of their names.

DAHLIAS.—Prince Albert, Bragg's Star, Triumph de Magdeburg, Toison d'Or, L'Empereur de Maroc, Sunbeam, Mont Blanc, Roi de Pontille, Melanie Adam, Mrs. Shaw Lefevre, Sunset, Florence Dombey, Rainbow, Madame Zahler, Victorina, Madame Wachey, Miss Vyse, Richard Cobden, Miss Chaplin, War Eagle, Remembrancer, Victoria Regina, Walter Hilson, Baron Treton. To this list others might be added, but I will only mention Princess Radziwil the most perfectly formed Dahlia I have ever seen.

ROSES.—*Tea*. Marguerite, Princess of Mecklenburg, Drummond, Safrano, Frageoletta, Archduchesse Therese Isabelle, Triumphe du Luxembourg, Yellow Tea, Moré's Lady Warender (a seedling of the exhibiter). *Ile de Bourbon*. Hermosa, Desgaches, Souvenir de la Malmaison, Madame Desprez, Madame Bazenquet, Madame Neuman or Monthly Cabbage. *Hybrid Perpetual*. Jollande d'Arragon, Prince Albert, Reine des Perpetuelles. *Bengal*. Cramoise Superieur or

Agrippina. *Noisette*. General Lamarque. This list also might be extended, but I will just mention the splendid Rose La Reine.

I must not forget to call attention to the large and splendid display of *Baskets*, made up of the choicest flowers of the season, and evincing the most exquisite taste. There were some eight or ten of these baskets, of very large size ; and in regard to arrangement, taste, and general effect, I consider them as being far the most lovely objects in the whole fair (the ladies alone excepted). It was not a display for a day, but the baskets were made up anew repeatedly during the continuance of the fair, and really seemed more beautiful with each renewal. There were also several baskets of *Wild Flowers*, very striking and beautiful, and not by any means to be overlooked, particularly in an exhibition specially designed to encourage native productions. It affords me pleasure to say that all these baskets were arranged by the hands of a lady, the same who made such a splendid display of bouquets and ornamental designs.

There were many other things eminently worthy of being mentioned, such as *Passion Flowers*, *Pansies*, *Pinks*, *Phloxes*, *Verbenas*, *Heliotropes*, *Chrysanthemums*, *Salvias*, *Abutilons*, *Metrosideros*, and other beautiful objects, which must be passed by without further notice. I can not, however, help alluding to a splendid bloom of that rare and singular plant, the *Aristolochia Braziliensis*, presented by Thomas Hogg, Esq., of Yorkville. I must also mention several large and beautiful blooms of the *Cereus triangularis*, from A. P. Cumings, Esq., of Williamsburgh.

[The awards made in the horticultural department, will be found in the list of premiums.]

I have thus taken a brief review of the horticultural department, and attempted to give some idea, however imperfect, of its general character. It is well to preserve a truthful record of the general aspect of our Annual Fairs, in order to have some standard by which to measure the progress we make from year to year. This practice, so far as relates to the horticultural department, was first carried out methodically by my esteemed friend and predecessor, Thomas Bridge-

man, Esq., who has labored so successfully in the cause of horticulture, and to whom the Institute is under many and deep obligations. This standard I have endeavored to furnish, so far as regards those things coming under my immediate supervision.

But I have not yet done. There are some other topics which cannot be passed over. I allude particularly to those reckless and unscrupulous pilferers who "most do congregate" on such occasions. To meet the necessities of the case our police force should be made more efficient, and examples should be made of such as are detected in these detestable practices, no matter what their position in society may be. It is not expected that the evil can be entirely suppressed, but it may be greatly lessened; its tolerance is not to be thought of. Let us look at the case for a moment. I say it with feelings of deep mortification, that persons in female guise have been seen to take specimens of fruit, flowers, and other objects, slip them under their shawls with an agility that would do credit to a magician, and walk off as coolly as if another's property had not been surreptitiously taken. Others, who would doubtless like to be considered gentlemen, will filch an apple, a pear, a flower, or other object, with a boldness that is truly surprising, but yet, at the same time, with a degree of slyness which indicates that they are conscious of committing a niggardly act. One person, whose profession and position in society, to say nothing of moral obligation, should have taught him better, was seen, in broad midday, to reach his arm over and help himself to some grapes. The moral powers must be blunted indeed when a person cannot distinguish between *meum* and *tuum* in a case so perfectly transparent. It is absurd in the extreme to attempt an apology for conduct like this.

I have to complain of another class of persons scarcely less detestable; those, I mean, who, seemingly for a pure love of mischief, if not something worse, take delight in removing the labels from the fruit and other articles, in throwing hops and other things in the flour barrels, in displacing every thing they see, and who can not pass by fruit without giving each specimen a squeeze that would produce speedy decay in objects much less tender than a peach or a pear. These practices are not confined to the horticultural department, but

are common to the whole fair ; neither have they been more prevalent this year than on former occasions ; but I have done with their detestable authors for the present. If these remarks should meet their eyes, I hope they may have the effect of mantling their cheeks with the blush of shame for conduct so reprehensible, and induce a resolution of amendment for the future.

A few words on one other topic before I conclude. The opinion has been expressed by some that the Agricultural Department of the Institute receives more than its due share of encouragement. Nothing can be further from the truth ; and I wish to state my conviction that it by no means receives the encouragement it deserves, and which its best interests imperatively demand. I doubt whether its real importance is fully understood by many of our members ; certain I am that its true position and character have been assigned to it by comparatively few. It seems to be generally regarded as a thing of secondary importance, and by some would be placed entirely in the back-ground. But, in brief, the fact is, it has been mainly instrumental in making the Institute what it is : it is its right arm, the key-stone which supports the whole superstructure. Pray, where would be your arts, and sciences, and manufactures, and commerce, without agriculture ? Echo answers, where ? Agriculture is at the very foundation of these, and of every thing else merely human, for society could not subsist a day without it in its present organization. Yet, in the face of these facts, we hear complaints that the agricultural department receives an undue share of encouragement ! Nothing can be more unfounded either in fact or reason. If its expenses are heavy, so are its receipts large in proportion.

I regret very much that such sentiments are entertained by any ; their general prevalence among the members of the Institute is much to be deprecated. I would have each department receive due and proper encouragement ; but it must be recollected that the majority of articles exhibited in the horticultural department, and that alone, are of a peculiarly perishable nature, must be frequently renewed, and are a complete loss to the owner. Take, for example, flowers, which must be renewed every other day for a period of three or four weeks. It is known to me that the expenses of some of the exhibitors have

not been less than two or three hundred dollars, including in this sum the value of the articles exhibited, and which are an entire loss. The most that is carried away for all this is a cup worth \$10 ; whereas in other departments the successful competitor carries off not only his cup or his gold medal, but his articles are as good as when they entered the fair. He has been a gainer in every sense of the word, and a loser in none. How very different with the exhibiter of flowers!

I would not make this a matter of dollars and cents ; and I am happy to know that exhibitors themselves entertain no sordid motives on this subject, but they very justly expect a fair standard of awards ; something more nearly approaching an equivalent for the efforts made and the sacrifices endured. People may talk of glory and notoriety as they please ; something besides these is necessary in the case under consideration ; and even of these airy things a man will not be satisfied with less than his full share.

I must here state in all candor, that when the just claims of exhibitors have been laid before the Institute, they have been promptly and honorably met : I know of but one solitary exception of delay, and that was not altogether without cause. But this is not the point : we must meet the case hereafter in preparing our premium list. We must make a forward movement, not only to keep pace with the progress of taste and improvement, but also to give a higher tone and character to our future exhibitions ; and somewhat, too, on the score of self-preservation. For this object, there is no time so propitious as the present.

I have been induced to indulge in these remarks in order to show that, so far from receiving undue encouragement, the agricultural department, alike from its importance and its intimate connection with the best interests of society, is eminently worthy and justly entitled to the very first consideration. Its expenses are only seemingly great ; for by its striking and pre-eminent attractions it has produced a much larger income than all other departments together.

There are other topics of interest which I had intended to touch upon, but this report has reached such a length that I must pass them by. In conclusion, I must add my sincere wish that the future course of the Institute may be onward, ever onward, like some mighty river,

bearing on its bosom the countless blessings of those peaceful and ennobling pursuits which it is its cherished object to promote.

All of which is respectfully submitted.

PETER B. MEAD,

Superintendent of the Horticultural Department.

New-York, December, 1849.

REPORT ON MR. S. B. TOWNSEND'S FIELD OF CORN.

The committee appointed to examine the field of corn of Mr. S. B. Townsend, of Astoria, L. I., submit the following report :

On arriving at Astoria, the committee, after the usual ceremonies of an introduction, proceeded at once to the discharge of their duty. It would require much time and space to recount all of interest which came under their observation ; they will therefore confine their report mostly to the field of corn which they were appointed especially to examine. Mr. Townsend informed the committee that he had 16 acres in corn, divided into two fields, one containing 11, the other 5 acres ; but as they were alike in all respects, they will for the sake of convenience, be denominated one. The committee devoted their attention, in the first place, to the variety, size, and quality of the corn. It is the ten-rowed flint variety, from seed grown by Mr. T., for 4 or 5 years past, and selected with great care, which is more necessary than is generally supposed, to prevent it from deteriorating. When in the midst of the field, the committee seemed as if in a forest considerably past its infancy, and had to bring their vision to a very acute angle with the zenith in order to see the "top gallants" waving above their heads. On measuring some of the tallest stalks, they were found to be about 13 feet in height, and none seemed less than 7. Some of the ears were found to be 14 inches in length. The grains were large, well filled, and compactly set. In some cases there were 4 and 5 stalks in a hill, but mostly 2 and 3. These in a great measure, had each two large and well formed ears ; some had three equally large ; and in a few instances, as many as four. The committee observed very few indications of smut. Altogether, it is a su-

perior piece of corn, and the committee do not hesitate to pronounce it, in the mass, better than any piece of corn which they saw by the way, several of which they stopped to examine. But, as will appear presently, Mr. T's corn is chiefly remarkable for the economical principles upon which it has been grown, and the consequent large profit which it will bring the owner. In addition to these 16 acres, Mr. T. has three more drilled in very thick for fodder. About half of these three acres was manured with prepared peat, the other not; in other respects, they received the same treatment. But the difference between the two was most striking. The part manured exceeded the other at least one half in size; and while it was evidently rich in sap, and presented a vigorous, healthy appearance, with many well-filled ears of corn, the other was somewhat imbrowned, comparatively dry, and quite destitute of ears. If an argument were needed to show that the farmer is richly remunerated by proper tillage and a judicious application of manure, the present would furnish a strong one. The soil on which this corn is growing is a sandy loam, quite friable. In preparing the ground, the sod was plowed under some seven or eight inches, a little deeper than many farmers are in the habit of plowing; and there can be no doubt that twelve inches would have given still more striking results, especially as the surface soil is not far from ten inches in depth. The seed was selected with great care, being taken only from stalks bearing two or more well-grown ears, from which the largest grains in the middle were selected, the rest being fed to the stock. The hills were planted sufficiently far apart to admit of the operation of the cultivator freely, and manure liberally applied. The following incident will give a pretty good idea of Mr. Townsend's manner of using the cultivator. "How many hoeings did you give this corn?" "Only one." "Ah! then I suppose you used the cultivator pretty freely?" "Oh, yes," said the old gentlemen, "*we kept it going.*" This reply is full of meaning, and was uttered with a deep earnestness, of which it is difficult to give a proper conception on paper. We commend these words to the serious consideration of every farmer who would hope for a large return for his labor. A few words as to the manual labor bestowed upon this corn; and here it is necessary to mention that Mr. Townsend has about eleven acres of Mercer potatoes, of superior quality and abundant yield. Here we have 19 acres of corn, and

11 of potatoes, making in all 30 acres. In preparing these 30 acres, Mr. T. employed two men and a boy. This small amount of hired labor is worthy of being noted, as having a direct bearing upon the cost and profits of the crops. These two men and the boy were employed two weeks in planting the corn and potatoes, and 16 days in hoeing, Mr. Townsend himself rendering little or no assistance. After this the boy, with one horse, "kept the cultivator going," and this, without doubt, kept the corn "going." The result cannot be otherwise than gratifying. What the yield per acre will be, can only be "guessed" at; but as Mr. Townsend has promised to furnish the Institute with the necessary statistics, this yankce feat may be dispensed with. The committee do not assert that this is the best field of corn that they have ever seen; enough has been said, however, to show that the crop will be a very profitable one. What struck them particularly was the small cost of its production; and it may be added that Mr. T. observes the same rigid system of economy in all his farming operations, and gets well remunerated. To place this in a clearer light, a few remarks are appended in regard to Mr. T's method of preparing his peat manure; indeed, his process of making manure is the distinguishing feature of his farm; he has in fact, a veritable manure manufactory, and material enough to keep his "operators" busy for a century. On the farm are many acres of *humus* or peat, of as fine quality as eyes ever beheld. It was 17 years before Mr. Townsend discovered this treasure; for treasure it will prove to any farmer who is so fortunate as to possess it, and who, at the same time, knows how to appreciate its value. It is believed that the majority of farmers have a little "placer" here and there, but mostly unknown, or, if known, not considered to contain any "precious ore." Our farmers, on this particular subject, have much to learn; it is very gratifying to be able to add, that some of them have taken the subject up in good earnest. Much might be said here if the limits of this report permitted. Suffice it that Mr. Townsend has a just appreciation of the value of his "placer," and works it to some purpose. Very briefly, he digs out this peat (so called) and throws it up in heaps to drain off the surplus moisture. When sufficiently dry, it is carted to the manure "manufactory," or, in other words, the pig pen, which is divided into four compartments, containing *fecia*

four to six pigs each. A thick layer of peat is put on the floor of the pen, with straw, corn stalks, and other rubbish, where it remains till it is thoroughly worked up and saturated with urine, when it is thrown over into the barn-yard, by the side of which the pen is built. When the first layer of peat is removed, it is immediately succeeded by another, and so on indefinitely. But Mr. T. is an economist in the strictest sense of the word ; nothing about his farm is permitted to be wasted ; every thing susceptible of being converted into manure is sure to find its way to the pig pen. In addition to this, the floors of his stable are taken up, the earth dug out two or three feet in depth and then filled up with peat. There it remains during the winter, absorbing the urine from the cows and horses, and in the spring is dug out and thrown into the barn-yard. It can readily be imagined how rich it is in ammonia. On most farms a saving like this is seldom effected. During heavy rains, there will be more or less washings from the barn-yard ; but these are "headed off." At the bottom of the yard a place is hollowed out and filled with peat, which absorbs much liquid manure that would otherwise be lost. This is removed when necessary, and replaced with fresh peat. As before remarked, every thing susceptible of being converted into manure finds its way at least to the barn-yard. The peat, and all the rest of these substances, (including a little lime), according to their destined application, are mixed with the manure from the stable, and frequently turned ; and it can well be imagined that a valuable, powerful, yet cheap fertilizing mass is thus produced. This is the kind of manure applied to the corn under consideration, and it is undoubtedly the very best that can be used for this and root crops, even on chemical principles. It may be thought that the committee have gone somewhat out of their way in giving these details, but Mr. Townsend's process of preparing manure was too interesting to be passed over in silence ; indeed, it may be said to have an important and direct bearing on the value of his crop of corn. Mr. T. furnished the committee with many interesting details in regard to the profits of his farm, all tending to illustrate a beautiful system of economy, attended with the most gratifying results ; but these do not come within the province of this report, already extended to a greater length than was intended.

These items may form a subject of remark on a future occasion. In conclusion, the committee would remark, that they consider Mr. Townsend entitled to the premium awarded for field crops

All of which is respectfully submitted,

PETER B. MEAD,
R. HALL.

October 1, 1849.

REPORT OF A SPECIAL COMMITTEE ON THE MANUFACTURE OF SALÆRATUS, BY MESSRS. BROWNE AND LOMBARD, BROOKLYN, N. Y.

AMERICAN INSTITUTE, Nov. 18, 1849.

The committee appointed by the Trustees to examine and report on the manufacture of salæratus, as it is called, by Browne and Lombard of Brooklyn, respectfully report :

That on the thirteenth of November, inst., they repaired to the manufactory where the work was in full operation. The grinding of the crude soda, in order to render the absorption of carbonic acid more easy, is done by steam power. The powdered ash is then spread in oblong shallow wooden trays, to the depth of about two inches; which trays are placed in air-tight vaulted brick chambers, of the dimensions of about twelve feet by eight feet. Into each of these chambers, (of which there are ten,) in this factory, (eight being in operation during our visit,) two pipes enter; one from a furnace burning anthracite coal in a passage out side of the vault, the carbonic acid arising from the combustion of which, is thus thrown into the vault in large quantity; the other is a steam pipe led off from the boiler of the steam engine, used for grinding as above stated. The trays are laid in the vault, one above the other, being kept about three inches apart by slips of wood, and the whole chamber so filled as to allow only a central passage for workmen. When the chambers are thus filled, the furnaces are lighted and the steam pipes turned on. The chambers become gradually filled with steam and carbonic acid, no exit being allowed, the vault being air tight. With the assistance of the steam, the alkali takes up an additional quantity of carbonic acid. and

in ten days the chambers are opened and emptied ; the contents of the trays are now caked, and require to be ground over before it is fit for market.

The committee was present when one of these chambers was opened, and a great quantity of carbonic acid gas came out of it ; a man went into the chamber—Mr. Browne, one of the proprietors, went in also ; so that it appeared to the committee that the manufacture, as there conducted, was not detrimental to health, as was exemplified by the appearance of the men, and aided by complete ventilation. We were assured by Mr. Browne that the ten chambers, when in full work, turned out in twelve days one hundred and sixty thousand pounds weight. The capability of making so large a quantity in such a factory, appeared to your committee one of the advantages of this process. The article produced appears to be much more pure than that made in the ordinary manner. The alkali as prepared in this way, is more constant in its composition, containing always the same quantity of carbonic acid in every sample ; the reason of which is, that the carbonic acid driven into the chambers from the furnaces upon the ground soda in the trays, has a tendency to unite with it, which union is further promoted by the moistening of the soda by the steam from the pipes above mentioned ; as the carbonic acid continues to be driven into the chambers, it enters still more into the soda until the full point of saturation is obtained, then no further use existing for the acid, it accumulates in the chambers until it overbalances the draught, returns through the furnace and extinguishes the fire.

It may be important to add that the process of manufacture pursued by Mr. Browne, becomes important in its department, inasmuch as by his plan it is capable of being indefinitely extended, so that the supply may fully equal the demand of consumption and commerce ; whereas, by the former process the quantity produced must necessarily be limited to that which the distilleries were capable of producing by the carbonic gas given out in the process of fermentation.

Your committee, in concluding, express a hope that the time is not far distant when the manufacture of crude soda ash will become a

staple branch of trade: which it is probable, could be lucratively carried on, considering the low price of common salt, the facility afforded by authracite fuel, and the low price of oil of vitriol. The introduction of the manufactures of crude carbonate of soda would be the commencement of the establishment in this country of a national trade, perhaps only second, at some future time, to that of cotton and iron.

Your committee, in consideration of the improvement in the mode of manufacture of Salæratum and Carbonate of Soda, the facility of extension, and unusual purity of material obtained, as conducted by Messrs. Browne and Lombard, recommend that some special mark of merit be awarded to these manufacturers.

THOMAS ANTISELL, M. D.,
DAVID DICK,
H. MEIGS, *Committee.*

LETTER FROM CHARLES HENRY HALL, ESQ.

On the production of Barilla.

HARLEM, November 27, 1849.

HON. HENRY MEIGS,

Rec. Secretary American Institute:

DEAR SIR,—In reply to your inquiry relative to the article known in commerce by the name of *Barilla*, I would state, that during my residence in Spain, it came under my cognizance in trade; having shipped quantities of it under orders from England, in which country, (as well as elsewhere,) it is used in making of *hard soap, the finest glass*, and for bleaching, in preference to any other “*carbonate of soda*.” This article is produced from the *plant* called “*Glasswort*” in England, and “*Salsola-sativa*” in Spain. The plant grows in many countries, and there are said to be as many as eighteen sorts of it, under the name of “*Kali*,” but the best sort is the “*Salsola*” above named, grown in Spain as well as in the south of France, on land impregnated with salt; and salt marshes are cultivated for a crop of the article. The Spaniards also cultivate several of the species, as most of the sorts may be indifferently used for the making of pot ash;

but the best is made from the *salsola*, at Alicant, Carthagena, and other places on the borders of the Mediterranean Sea. At the above places, as well as at Marseilles in France, I made inquiry relative to the culture of the plant, incineration of it, in order to produce *soda*, and generally the practices attending it until ready for transportation in commerce. The ground is prepared as for a crop of wheat, on dry salt ponds, or on salt marshes, and the seed sown early in the spring; and in those warm countries, the plants soon spring up, and in about three months will become fit to cut down for use and dried in the manner of hay, and then tied up in bundles preparatory to burning in pits. The pits are dug in the ground about four feet square, and three and a half feet deep. In these pits are placed wood in billets, and set on fire, and partially covered over in order to keep in the heat, and make the pit a sort of kiln or furnace; when sufficiently hot, the bundles of *kali* are put one upon another on the fire and burned something like the manner of conducting a coal pit; the *barilla* then flows out and runs down to the bottom of the pit, until a large quantity may be formed into a solid mass; when cold, the article is drilled and broken out in large masses, from fifty to an hundred pounds in weight, or more, (and the less broken the better,) as when more broken, the air sooner causes decomposition and loss of weight. The *barilla* is of a bluish grey color, and has the caustic taste of pot ash. Matts are prepared, made of a grass called *Esparta*, in which the commodity is put, after weighing, and made ready for transportation.

Relative to the culture of this plant, I would further remark, that in its native state, it is of humble growth, of about a foot in height, but in land well tilled, it rises more than double that measure. Like wheat, it is sown broadcast, and pains taken to have good tillage, and prevent weeds causing failure. It was said that the plants made to stand a foot asunder, by hoeing would reward the cost of labor.

In France, the following singular fact was stated to me: That on the sea board, it was the practice to prepare the land in all respects as for wheat, and sow that grain and *salsola* together, in order to guard against failure; as in the event of a very dry season the wheat would not succeed on the salt land, and in its stead, the *salsola*

would flourish and produce a fine crop; on the other hand, if a wet season prevailed, then the wheat would flourish by reason of the salt being washed out, or sunk deeply into the earth; and thus the farmer was sure of a crop of the one or the other article. The best seed is to be obtained from Alicant in Murcia, where there is great cultivation of salsola, the whole region of land being impregnated with salt, and there are many salt ponds in the vicinity, which causes the crop to be a sure one, there being no rain there during the summer season, which is not the case in France. Barilla is an article of great commerce in Spain, Sicily and Teneriffe, and from those places alone are shipped yearly to England, France, and the United States many thousands of tons, for the making of glass, hard soap and for use in other purposes. To England, there is shipped yearly from Spain, Sicily and Teneriffe probably more than 200,000 cwt. of the article of Barilla, and to Marseilles, and to the United States, also, very large quantities.

Barilla seed can be procured of the best quality at Alicant, as there the genial climate brings it to perfect maturity. In this country, the plant would, in my opinion, mature and produce an abundant crop on our salt marshes any where south of New-England, as it arrives at maturity in the same space of time as spring wheat, and were it introduced, our country would become independent of other countries of one more article of necessity in our manufacturing establishments.

I have the honor to be, dear sir,

Yours most respectfully,

CHAS. HENRY HALL.

MR. HELME'S METHOD OF MAKING BUTTER.

The first premium for Butter was awarded to Mr. Thomas Helme, who makes the following statement of the method pursued by him:

We have kept during the past season seventeen cows, from which have been made 2,414 lbs. of butter, (not including that used by the family, consisting of eight persons.) The cows are fed about two quarts of grain per day besides the usual quantity of hay after coming

in in the spring, until they are turned to grass. The milk is strained into clean pans, and is allowed to stand until it gets thick or loppered. The milk and cream is then churned together; the churn is filled about half full of milk, with the addition of a quantity of cold water before churning; in cold weather, warm water is put in. When the churning is finished, which generally occupies about two hours, there is then more cold water applied to raise and cool the butter. The butter is then taken out and washed, after which the water is thrown off. It is then salted and placed in a cool situation, where it is allowed to stand about eight hours. It is then worked over and replaced until the next morning, when it is carefully worked over and packed away.

Particular attention in regard to cleanliness throughout all the various operations.

THOMAS HELME.

Wallkill, Orange county, N. Y.

MR. D. JESUP'S METHOD OF MAKING BUTTER.

GOSHEN, Dec. 16, 1849.

MANAGERS OF THE TWENTY-SECOND ANNUAL FAIR :

Gentlemen,—In compliance with the requisitions of the law, I make this statement in regard to butter: We keep fourteen cows, the milk of which, from the first of April to Dec. 1, furnished us with 2,152 pounds of butter. We have two churns, which hold about 40 gallons each, and use them both once a day. We use sheep to do our churning, which takes about one hour. We use cold water in abundance; before starting the churn, we put in the water according to the heat of the day. When it comes out of the churn, we wash all the milk out that we possibly can, and set it in a cool place for about three hours; then we work it again, and by using cold water, wash it thoroughly. In this way we wash it three times, and then let it stand till next morning, when it is packed in pails for market. We feed our cows on good hay alone, clover mixed with timothy.

Respectfully yours, &c.,

DANIEL JESUP.

DORKING FOWLS.

The Dorking fowls which I exhibited at the late Fair of the American Institute, and for which premiums were awarded, were from the stock imported from England by Mr. A. B. Allen. These fowls are large, but yet, there are other breeds which are larger, at the same time, however, much coarser in their flesh, and only larger in their long necks, large thighs and broad rumps. The shape of pure Dorkings is as perfect as could be wished, short necks, broad, projecting breasts, short legs, and peculiarly narrow in their posterior parts. When grown, they resemble very much the partridge, and when only one-third grown, the quail. The flesh is very delicate, and on that account, and also from their shape, aptitude to fatten, and size, are highly esteemed abroad as a Capon fowl. From the success I have had this year, I think them as good layers and as hardy as any other breed. There is one peculiarity about these fowls, they are disposed to have five toes on each foot. This is not a positive evidence of their purity, for I have seen one imported directly from Dorking, which had only four toes, and many of my best fowls have only that number. I have observed, also, that when this is crossed with common breeds, that the progeny are even more inclined to have five toes, and the fifth toe is often very prominent. It is only necessary to mention this fact, because those who wish to possess this breed, are often imposed upon by those who sell any fowl with five toes as a Dorking. One well acquainted with this breed, would not look particularly at the toes, but select Dorkings from their general style and appearance. Another peculiarity is their white skin, and fat, and white legs. This with some would be considered an objection, as they do not look so yellow when dressed; but no poultry browns nicer, or appears better when boiled; indeed, I am informed that it is esteemed as a valuable quality in England. As I never had as many of these fowls as I needed to stock my farm, I have been subjected to much trouble to preserve the breed. I kept only Dorking cocks, but it was inconvenient to watch the nests of the hens to get the Dorking eggs. I have visited many poultry yards where different breeds were raised, for the purpose of learning the best mode of separating fowls, but I never saw any that I could sufficiently approve of to adopt.

Last spring I erected a good sized poultry house in a warm situation; proper roosts were made, and boxes for the hens to lay in. The ground floor was covered with muck, straw, &c., for them to scratch in, and to absorb the gases emanating from their manure. Two glass windows were put in, facing the south, and there was in one corner an enclosure, filled with ashes, lime and sand, for them to pick and roll in. I had this house, its nests and roosts, whitewashed, and furnished with a door, which I kept locked. I supplied them with fresh water, and as much grain as they would eat daily; also some scraps, from which fat had been pressed at a soap manufactory. In this manner I was certain of their eggs, for I kept only my choice fowls in this house, and they were always confined except on pleasant afternoons, when I would let them out to roam over the fields for a few hours, securing them every evening, after I had examined the roosts to see that no intruder was present. A few days since I sent several pair of these chickens to market, about six months old; they weighed nine pounds and a half a pair. They had not had any extra feed, only what they could pick up around the farm.

HENRY A FIELD.

Poughkeepsie, December 17, 1849.

CULTIVATION OF RYE.

In compliance with your request, I furnish a statement respecting the rye flour for which a premium was awarded by the American Institute at their late Fair. I cannot write anything that is unusual as regards the mode of cultivation. The seed was a variety of white rye raised by farmers in this vicinity, the flour from which, when carefully ground, makes bread almost as white as common wheat flour. Indeed the flour which I exhibited, makes whiter bread than some wheat flour we recently had ground from southern wheat. A neighboring miller informed me that he furnished a baker with some flour made of this variety of rye, who, when he sent his order for another supply, requested it should be ground darker, as some of his customers objected to the bread on account of its light color, believing it was made of mixed flour. Upon a portion of the field, upon which this

rye grew, I made an improvement which I think worthy of relating. There was about half an acre of ground which was covered with large bogs, weeds, and coarse grass, which had never been tilled, besides the contiguous land was kept so cold and wet, that the crops raised upon it were very uncertain. To improve this, I commenced draining it by plowing several furrows in the situation of the required drain, then instead of throwing the earth on each side of it as usual, a cart was backed up, and the contents of the ditch were shovelled in it and dumped on the higher land. After the drain was sunk low enough, two blind ditches were constructed at right angles with the main ditch and filled with small stones. The ground was then plowed, and such of the bogs as were not covered were hauled off to be burned when dry. The edges of the ditch were then plowed and obliterated by scraping them with a scraper, which gave enough soil to fill up the surrounding irregularities. This was done some weeks previous to the usual time of preparing the field for a fall crop. When the whole field was plowed, this portion was laid off in lands about twenty paces broad, and back-furrowed. I was much gratified with the result of my improvement, for I had a fine crop of rye, and the grass seed has taken very well, and I had about seventy loads of good manure from the ditch deposited upon land that required it very much, the effects of which were perceptible also upon the first crop.

HENRY A. FIELD.

Poughkeepsie, December 17th, 1849.

SEED CORN OF MR. SHARP.

Statement of Mr. Sharp in relation to the seed corn raised by him, for which the premium was awarded for the best 40 ears of yellow corn.

TO THE BOARD OF MANAGERS :

Gentlemen—The corn raised by me, for which I was awarded a premium at the late Fair, was selected from a ten acre lot containing 1500 young peach trees, which were set out by me two years ago. The previous year the field was in corn. It was plowed in the month of November last, and a handful of poudrette made by the Lodi Manufacturing Co. was applied to the hill at the time of planting. At the

second hoeing in a portion of the lot which I judged to be poorer than the rest, I applied a second dressing. No other manure was used by me upon this lot besides the poudrette this year and the year before. I consider the crop this year to be as good, if not better than that of last year. The quantity of poudrette used was 150 bushels on this lot; it cost me \$37.50, besides the cartage nine miles to my farm. I reside in the town of North Orange, Essex co., N. J. The yield of corn upon the ten acres will not be less in my opinion than 90 bushels of ears to the acre. This soil is a sandy loam.

JACOB A. SHARP.

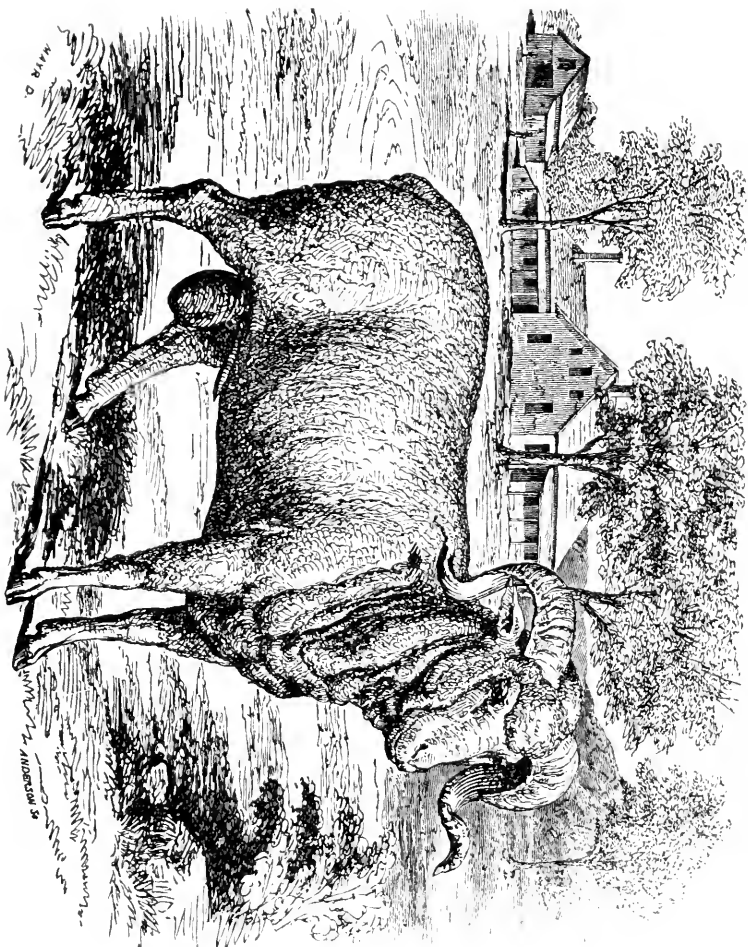
Orange, N. J., November, 1849.

PREMIUM BUCK BONAPARTE.

Bonaparte. The best fine woolled buck exhibited at the Fair of the American Institute, Oct. 11, 1849; the property of Seely C. Roe, Esq., Chester, Orange county, N. J.

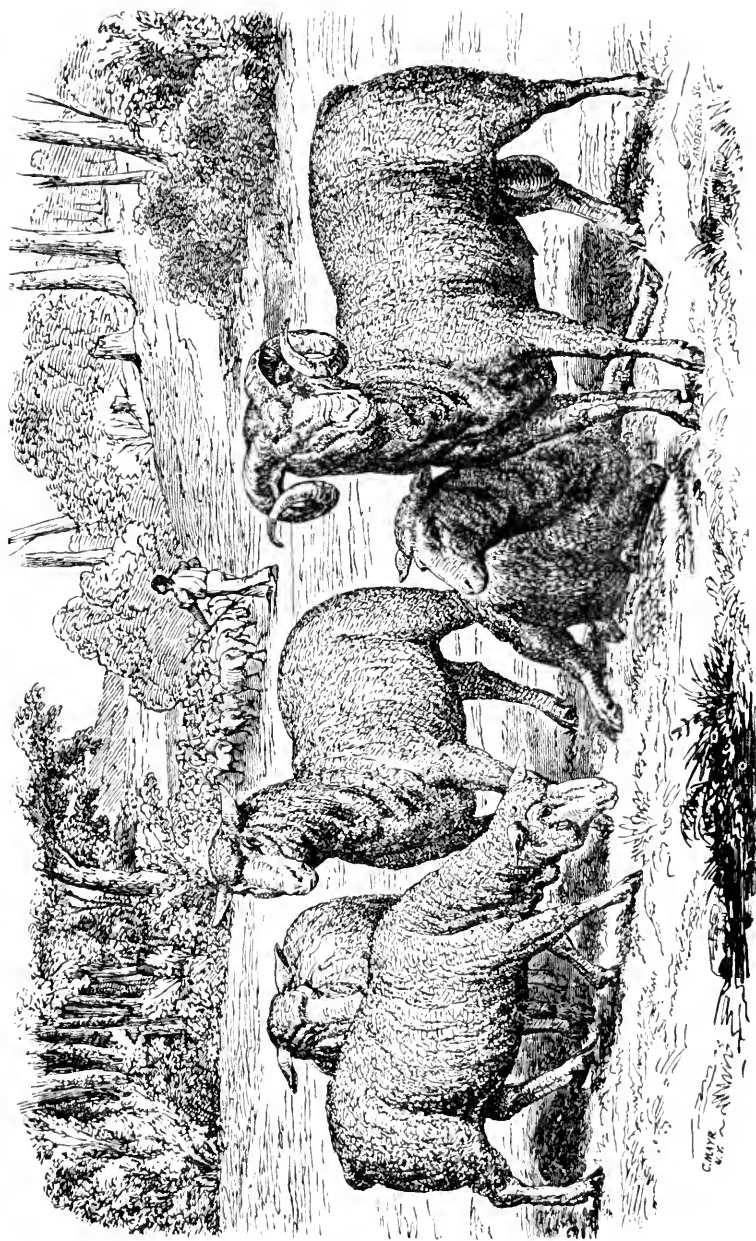
The annexed cut represents Mr. Roe's prize buck Bonaparte, which received the first premium for fine wool; a silver cup. It was bred by S. W. Jewett, Esq., of Weybridge, Vt., from a pure bred merino ewe, which has sheared in five annual fleeces thirty and a half pounds of wool, well washed upon the back.

Bonaparte was got by Napoleon; the property of S. W. Jewett and A. L. Bingham. Napoleon was bred by John A. Taintor of Conn., from a ram and ewe imported by him from France in 1846. Napoleon's first fleece, clipped in May, 1848, at fourteen and a half months growth, was $22\frac{1}{4}$ pounds; and his second fleece, cut in June, 1849, at thirteen months growth, was $23\frac{1}{2}$ pounds. The aggregate of his two fleeces weighed $45\frac{3}{4}$ pounds of unwashed wool.



“BONAPARTE.”

Best Fine-Wooled Buck exhibited at the Twenty-Second Annual Fair of the American Institute.
The property of SHERY C. ROE, Esq.
Face p. 114.



PAULAR MERINO SHEEP.

The best pen of Merino Ewes, and second-best Buck, exhibited at the Twenty-Second Annual Fair of the American Institute.
The property of GEORGE W. CAPEHEART and CULLEN CAPEHEART, Merry Hills, N. C.

MERINO PRIZE SHEEP.

Paular Merino Prize Sheep, the property of Messrs. Cullen Capeheart and George W. Capeheart, Esqrs. Merry Hill, North Carolina.

The annexed groupe was taken from life by C. Mayr, artist, at the exhibition of the American Institute at Madison Cottage, in the city of New-York, Oct. 11, 1849; delineating Merinos belonging to Messrs. Cullen and George W. Capeheart, Esqrs., of Merry Hill, North Carolina. To them was awarded a silver cup, for the best pen of fine-wooled ewes; and a diploma, for the second best fine-wooled buck.

These sheep were bred and forwarded by S. W. Jewett, Esq., of Vermont, got by his premium buck Fortune. They are distinguished for yielding very heavy fleeces of fine wool; the ewes annually yield over five pounds, and the rams over ten, of well cleansed wool. They are also noted for being very docile and hardy, possessing very strong constitutions, and able to thrive upon very scanty keep. The ewes are good nurses, and the lambs are easily reared, because they drop strong and are protected from cold and wet by a thick covering or coating of soft hair and fur, which in a few months is shed, and replaced by a thick pelt of rich, soft, oily wool, remarkably compact, covering the whole body; a natural clothing, sure to protect them in severe weather.

This breed of sheep are also distinguished for having loose, heavy, folded skins, particularly about the neck, in the form of a ruffle, giving them a bold and lofty appearance, with some folds upon the ribs, and a wide-set tail at the rump. In the Patent Office Report for 1847, may be found an able letter from Charles L. Fleischman, Esq., accompanied with cuts representing the best breeds of sheep in Germany. On page 268, Mr. Fleischman says: "Twenty years ago, bucks with a smooth, tight skin, which had extremely fine wool, were considered the best; but their fleeces were light in weight, and had a tendency to run into twist. The German Merino wool grower had to come back to the original form of rams, with a loose skin, many folds and heavy fleeces, and since then they have succeeded in uniting

with a great quantity of wool, a high degree of fineness. *This kind of heavy folded animals, rams and ewes, are now considered the best for breeding and wool bearing.*"

"The Spaniards kill all those lambs which are born with few folds and fine short hair, *or almost naked*; because experience has taught them that the offspring of such animals bear a fine wool, but produce by degrees animals with flabby, light fleeces, which gradually lose the folds, and become thinner and thinner in the fleece; and are consequently less advantageous to the wool grower than those sheep which are produced from lambs with plenty of folds, and a thick cover of fine, soft hair."

ALDERNEYS.

COMMUNICATION FROM. R. L. COLT, ESQ.

Paterson, N. J., December 4, 1849.

A. CHANDLER, *American Institute.*

Dear Sir—I am entirely satisfied that the Alderney stock raised in this country does not deteriorate; on the contrary, the calves I have raised from imported cows are larger, and give more milk than the imported stock, and as rich in quality. And so I can say of the Ayrshires, both of which grade of cattle I have imported, and both I think are increased in size, if not in all the qualities belonging to their individual breed, and certainly they have not fallen off in their milking qualities.

I would strongly recommend to your Institute that you import samples of the best plows, harrows, drill machines, and, in short, a sample of all the best agricultural implements of England; let them be exhibited to our mechanics, and we may be sure that they will improve upon them. Then import all the best samples of wheat, rye, oats, and seeds of roots, and distribute them to our farmers with this condition, that the recipients return two for one, for future distribution.

Above all, draw up a petition to Congress that they give to each State or Territory a township or more of land, which shall go to the oldest college in said State or Territory, for the purpose of connecting therewith an agricultural department, where Agriculture shall be taught practically and theoretically. We want to get rid of our public lands, and I know of no way in which this can be done to so great advantage, as in fostering and protecting agricultural institutions.

With regard, truly yours,

ROSWELL L. COLT.

ADVANTAGES OF MUCK IN AGRICULTURE.

Communicated to the American Institute, by R. L. PELL, Esq.

All soils are chiefly composed of three substances, viz : lime, alumina and silica. Lime is met with in several forms in all countries ; such as chalk, shell and stone ; silica in the form of silicious sand ; silicious gravel, and among clay as fine sand ; alumina usually in the form of clay, and these are supposed to be formed by detritions worn from rocks, and incorporated with organic matter ; producing the different varieties of soil known as sandy, gravelly and clayey ; the last, forming when unenriched, the most unprofitable soil to the farmer ; yielding inconsiderable crops, after difficult tillage, and that of a valueless quality. The sandy soils differ from the clay, inasmuch as there is but little tenacity in them ; and they require manures and other additions to consolidate them ; thus preventing excessive evaporation of all their moisture. With the proper means for improving a sandy soil, I much prefer it to a clay ; as it is warmer and brings crops to maturity rapidly.

Gravelly soils are apt to be more barren than either clay or sand, on account of the large amount of undecomposed rocky substances contained in them. They are naturally barren because of their silicious character, and are commonly known as hungry soils. Muck, or peat, when properly prepared, is one of the best additions that can possibly be used for all these soils. It contains an abundant supply of decayed vegetable matter, which, when judiciously applied, must produce

a high state of fertility, as the substances composing it decay. When plowed into the soils, it likewise forms a capital absorbent; and the benefits to the land are gradual, particularly when applied to a calcareous or porous soil. It prevents the liquid manures, if any are made use of, from sinking too deep. The farmer must not, however, expect rapid results after an application of muck, unless he uses artificial means to expedite its effects, it naturally decays very slowly. I would recommend several modes of preparing it for agricultural purposes.

1. After it is taken from the swamps, if required for use the same season, it should be piled about four feet high, and then allowed to drain off its surplus water, about one third its weight,—after which it may be mixed with one quarter of its weight of barn-yard manure. Heat is immediately generated by the manure, and the whole soon becomes more valuable for agricultural purposes, than an equal quantity of farm-yard manure.

2. The liquid may be taken from the farm-yard, and sprinkled copiously over a heap of partially dried muck. It will cause heat and fermentation, and thus soon prepare a heap of fine fertilizing manure, fit for any crop; or the muck may be placed in the barn-yard, and its effect will be to prevent the escape of carbonic acid gas, and other enriching matters, which hourly evaporate from the heap, and are lost to the farmer.

3. Farmers living on the sea shore may prepare an exceedingly valuable manure, containing all the necessary saline substances required by growing crops, simply by applying say one cart load of seaweed to four cart loads of muck. The sea-weed will decay most rapidly, and thus cause the whole mass to become a very great fertilizer, particularly to a potato crop.

4. Unslacked lime, say 1 bushel to 10 bushels of muck, will cause almost spontaneous fermentation, and in a very short time convert the mass into a uniform manure, admirable as a top dressing for wheat or grass. In England, rape dust has been used extensively as a decomposer of muck. The fermentation is so rapid that in six weeks

a well-fermented manure has been formed, and used advantageously on a turnip crop.

Notwithstanding so valuable a fertilizer can be formed from peat or muck in its natural state, it may be called an adventitious soil, not capable of growing any crop, either cereal or leguminous. It is antiseptic and inimical to the growth of plants used by man; instead of accelerating their growth, it changes them into matters analogous to itself, owing chiefly to the humid situations in which it is usually found. During the excessive drought of last summer a piece of land that heretofore had been covered with water, became dry, and after harvest I set eight men and three teams to work, with a view of extracting a quantity of muck for agricultural purposes, and during two months, drew out and piled four thousand ox-cart loads, in large square piles, four feet high. At the surface it was fibrous and black as ink for a depth of thirteen inches, and looked like a mass of well-rotted barn yard manure. I had it analyzed, and it proved to be precisely the same in composition, not differing from an analysis of manure made by Springle, and I truly believe it was much more valuable, inasmuch, when once placed in the soil it will last for many years. Lower down, it became of a blackish color for the depth of twenty inches, and was partially decayed; lower still, for about twenty inches in depth, it was of a brownish grey color, and filled with vegetable fibres and decayed leaves, stems of trees, &c. Still lower, for the depth of six feet, it was of a deep brown color, containing decayed stumps of large trees, still retaining their forms entire, limbs and stems, together with a mixture of leaves. After having dried a quantity of the first named, or surface muck, I undertook to manure an acre, about one thousand feet distant from the pile, in order to discern how cheaply a proper coat could be put on land, and the difference between it and stable manure at 4s. a load.

I drew upon one acre 222 ox cart-loads, which covered the ground fairly, at a cost, including its extraction from the swamp, of \$31.08, or 14 cents per load. Fifty-two wagon loads of stable manure might have been put on at the same price. The farmer, therefore, has to calculate which he would prefer, the lasting benefits of 222 loads of muck, or fifty-two loads of manure.

I must confess that had I supposed it would have cost me \$31.08 to manure an acre of land with muck, I would have purchased the manure in preference. A farmer desirous of obtaining muck, who has none on his farm, may, if he possess a small stream of running water, dam it, and thus produce a marshy spot, in which aquatic plants, such as rushes, mosses, &c., will immediately spring up, grow to a large size and die. New shoots will grow from the roots the ensuing year, and in their turn decay, thus in a few years a large quantity of vegetable matter will accumulate a thick bed of valuable muck. In England the lowest layers of muck are formed in water, of aquatic plants, the second layer of mosses, and the top layer of heath. In Terra del Fuego, the whole face of the *level* country is overgrown by two species of plants known as the *Astelia plumia* or rush, and *Donatia magellancia* or *Saxifrages*, which decay together and form fine beds of peat. In the Falkland Islands all the herbage, grass, &c., covering the whole country, decay and turn to muck. Such soil, when well drained, loosened and thoroughly broken up by good tillage, so that the air can gain access to the dead matter, will yield almost any vegetable production. The muck absorbs and retains for the use of plants not only water, but air, adequate to the use of the roots requiring the same. The vegetable substances contained in it are also advantageous and necessary to the growing plants, affording organic, and inorganic compounds, which minister to their successful growth, and add physical constitution, chemical properties, and agricultural capacity to the soil, enabling it to yield a profitable crop to the husbandman. There should be in the soil, to render it productive and capable of yielding large crops, at least 50 per cent of organic matter, and there is frequently 70 per cent in our western lands, enabling them to yield 40 bushels of wheat to the acre.

I would not be understood to say organic matter alone, even if there be 70 per cent, is sufficient to impart great fertility to a soil, as there must likewise be dead inorganic matter, to sustain vegetable luxuriance. Well decomposed black muck usually contains both these requisites in proper proportions and likewise possesses the power of absorbing rapidly, warmth from the rays of the sun. Muck performs for the soil *four* distinct and very important functions :

1st. It yields to the growing plant, inorganic and organic supplies of food as it grows, and is prepared to receive and elaborate it in its system, through the medium of its roots and spongioles.

2d. It sustains, supports and affords a safe hold for its roots, giving them strength to uphold the stem, and enable it to withstand the gales to which it is constantly exposed.

3d. It absorbs hydrogen, ammonia, carbonic acid gas, water in its pure state, heat, and the direct rays of the sun.

4th. Chemically speaking, it elaborates by the aid of air and water, all the chemical changes in the growing plant; prepares and makes ready the necessary food to be taken up by its roots to sustain and bring it to maturity and full perfection.

The scientific farmer may, by the application of muck, and a few chemical substances in addition, grow any crop upon his land, and, I was going to say, any quantity; but I will say any reasonable quantity of either grass or grain. He can alter the character of a soil only yielding the fine finger vine, to such an extent by draining, sub soil plowing, and adding sand, marl, clay or *muck*, as to induce it to yield a luxuriant and abundant crop of any description of plant, and all this can be done at trifling expense, provided he will, in the first place, either analyze, or employ a chemist to do it for him, a small portion of his sub and surface soil. Thus he will become master of the constitution and chemical requirements of his land, and be enabled, at small cost, by the application of the proper ingredient to attain his object, whatever it may be. By nature, all soils, wherever situated, are each adapted to the peculiar kind of plant naturally growing upon them, and likewise to different varieties of cereal grains; for example, rye will grow and flourish to a certain extent upon pure sand, and is the only cereal grain that will. Soil in which clay predominates, is generally considered the best adapted to wheat.

A loam soil, consisting of sand and clay, for barley; a sandy loam for oats. Oats will also do well in a soil in which sand predominates to a very great extent. Soils indicate to the farmer when they are

in a proper state to receive his labors, by the growth of the dandelion and white clover. Where they grow, the cereals will flourish. In Switzerland, marl beds are indicated by the growth of coltsfoot, and butter-bur.

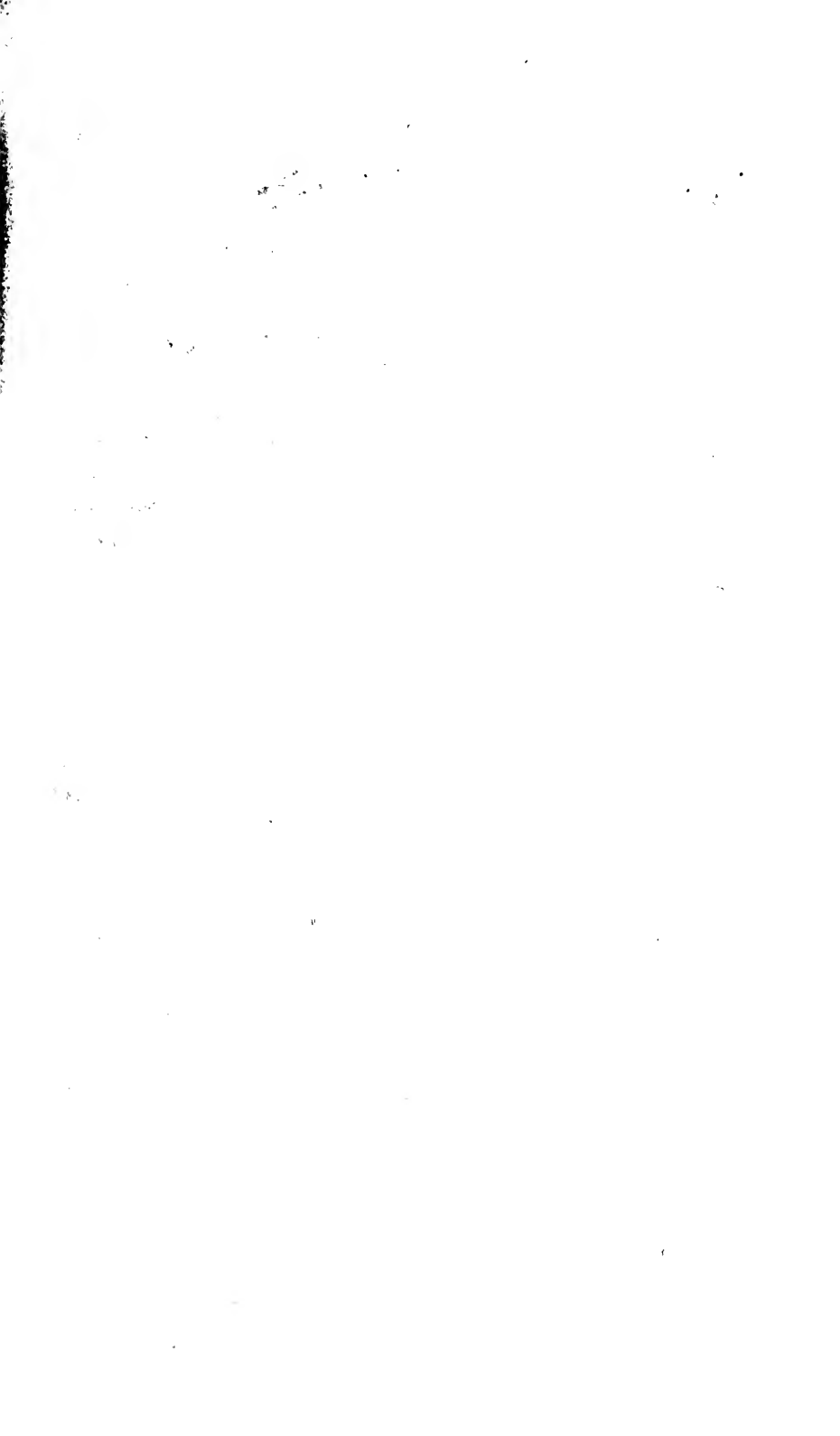
The couch-grass is seldom seen on land containing an abundance of lime ; but the poppy abounds in such soil.

Muck lands grow peculiar kind of grapes suited to their nature, when first laid down. Muck, when burnt, yields an ash which may be used advantageously on any crop. It consists of gypsum, silica, alumina, oxide of iron, oxide of manganese, lime, magnesia, potash, soda, sulphuric acid, phosphoric acid, chlorine, carbonic acid, and charred turf. These ashes are placed upon the land at the rate of two tons to the acre. They are put upon flax, peas, potatoes, and clover, with good effect. Farmers should use the following means to render their farms fit for agricultural productions :

1st. They should alter the constituent parts of their soils by the addition of ingredients which they are found to require, or the subtraction of substances they may contain a superabundance of.

2d. If their lands be too wet they may drain them, and if too dry may irrigate them, thus their relation with respect to moisture or dryness is changed.

3d. They may change their texture by thorough sub-soil plowing, and deep tillage, together with a proper application of muck, and they might reduce the woody fibre of muck when dried, to dust, boiled thoroughly in water, until all its soluble matters are extracted, dried in an oven, and ground in a mill, so as to yield a meal that can scarcely be distinguished from flour, either in taste or smell, and if well fermented with yeast and baked, may be eaten as bread, or if boiled will produce a jelly—or by an application of vitriol and water in proper proportions, together with a little iodine will make starch, to which may be added sulphuric acid and chalk to form gum—and the gum by an addition of lime and sulphuric acid may be changed





THE "ENDICOTT" PEAR TREE,

Near Salem, Mass.

into sugar, and the sugar by an application of nitric acid, may be converted into oxidic acid. So much for chemistry.

We are indebted to this science more than all others, for extending our knowledge beyond the most sanguine expectations of man. It has enlightened us concerning the properties of hydrogen, oxygen, nitrogen, and carbon, in their relations to vegetable life, the combination of organic and inorganic elements, that minister to the growth of plants, the constitution of the atmosphere, the evaporation of water, and its influence upon the growth of vegetation, the structure of plants, the properties of the root, the functions of the leaf and bark, the mutual transformation of fibre, starch, gum, sugar, the vegetable acid, the chemical changes that take place during germination of seeds, the formation of the leaves, the expansion of flowers, and ripening of the fruit.

Through its wonderful agency we are destined ere long to navigate the ocean without fuel, to warm our houses without coal or wood, to light our cities without cost, and perhaps drive our plows without horse, and enrich our lands without muck.

COMMUNICATIONS TO THE AMERICAN INSTITUTE IN REFERENCE TO THE ENDICOTT PEAR TREE.

Salem, September 5, 1849.

HENRY MEIGS, ESQ.

Dear Sir—Your favor of the 20th of August was duly received, and I should have replied before now, but being very busy has prevented.

I have copied from the appendix to the address delivered before the Massachusetts Horticultural Society by Wm. Lincoln, in 1837, some interesting matter in regard to the Endicott Pear Tree; I also enclose a copy of a sketch of the tree prefixed to Prof. Russell's account. I beg leave, however, to say that Plymouth, and not Salem, as seems to be stated in the first paragraph, is the oldest town in New-

England ; Salem being the second. I may mention, also, that the tree is still in the possession of Gov. Endicott's descendants, and will undoubtedly continue to be cherished and protected.

I visited the tree in 1846, in August or September, and my observations agree with the descriptions quoted. It had made some new shoots on the ends of the limbs, and had some fruit on, but not much. I ought to mention that that was not a good pear year. The fence erected in 1823, according to the following account, remained there then. The land around it was in grass, if I remember right. I have grafts of it growing in my own grounds, from which I have cut a few buds, which I have the pleasure to enclose herewith. It is a very thrifty, strong, upright grower with me. I have had fruit on my grafts in years past, but this year the pear crop is wholly cut off, and the Endicott along with the rest. The fruit is roundish, flattened ; skin thick ; color dark green ; rough, and with considerable russet. Ripe in September and October. In regard to quality, whatever the antiquary may say of it, the pomologist cannot but pronounce it third-rate.

I am, yours, respectfully,

ROBERT MANNING.

THE ENDICOTT PEAR TREE.

Tradition connects the planting of the Endicott Pear Tree and the foundation of Salem, with the same date, 1628. Historical evidence renders it certain that the existence of the tree could not have been so early as the origin of the first town of Massachusetts.

The late reverend and learned Doct. Wm. Bently, "desirous," in his own words, "to honor the man who, above all others, deserved the name of the Father of New-England," addressed three letters to President John Adams, in relation to the antiquity of the survivor of the orchard of Governor John Endicott. These manuscripts are preserved in the archives of the Massachusetts Historical Society, and have been kindly communicated by Rev. Doct. Thaddeus M. Harris.

Doct. Bently, in his letter dated October 10, 1809, writes thus : " The tree is near the site of the first mansion of the Governor, and the land and tree always have been and now (1809) are, the property of his direct heirs, being in the possession of Mr. John Endicott, nearly fourscore years of age, and of the sixth generation. To ascertain its age, near it stood a dial, which was fixed upon a pedestal, which, the Governor said, bore the age of the tree. That dial has been for years in my possession. It is in copper, square, horizontal, three inches, a very fair impression, and in the highest order. It was marked *William Boyer, London, clockmaker, fecit, 1. 1630, E.*, the initials of the Governor's name."

As collateral testimony of the age of the tree, a reference is made to a letter from the company in England to Governor Endicott, April 17, 1629, printed in *Hazzard's Collections*, vol. 1, page 262, in which is written : " As for fruit stores and kernels, the time of the year fits not to send them now ; so we purpose to do it per next." The inference is made, that this intention was executed, and that the seed, from which sprang the venerable tree, was sown in the spring of 1630.

It is very improbable that the first fruits of New-England were reared from *seeds* originally strewn on *our soil*. The emigrants were well informed, by their own experience as cultivators, of the accelerating operation of the process of transporting ; and they could not avoid understanding that its application would aid the formation of orchards on the fields of the New World, as it had done on those of the eastern continent. The early maturity of the *Winthrop Pippin*, shows that the trees of the Governor of Massachusetts *must* have been imported from the nurseries of Europe, and gives solid ground for conclusion, that Endicott would have availed himself of the same means of anticipating the slow course of vegetation, by bringing to his plantation *trees* of such advanced age as to bestow immediate productions, instead of waiting through a quarter of a century, until *seeds* yielded their increase.

One circumstance conflicts with the traditions of the era when the pear tree was first fixed, on the site it occupies. The farm where it stands, situated in that part of the ancient territory of Salem, now

Danvers, was not granted to John Endicott until July 3, 1632. It is improbable that the excellent Governor would have commenced the cultivation, before he had obtained the legal right of possession of the land. A year, at least, must have gone by, before the forest could have been cleared away, and the soil prepared for the reception of an orchard. The tree could not well have been set before 1633 or 1634. As the apple trees of Winthrop were in bearing as early as 1638, it is probable that they had priority in their planting, to the pears of Endicott.

In 1796 Doct. Bently visited the Endicott farm, and gives the following description of the oldest living fruit tree in Massachusetts. "It now bears the name of the *Endicott Pear*, but in the family the *Sugar Pear*. This is the tree which stood not far behind the dial, and has its age reported from it. It is in front of the site of the house, and rises in three trunks from the ground, and is considerably high. It is much decayed within, at the bottom, which gives it the appearance of three trunks; but the branches at the top are sound."

Most interesting descriptions of the present condition of the aged tree have been procured by the kind attention of the Rev. Dr. John Brazer, of Salem. The first account has been furnished by the lineal descendants of Governor Endicott, the second is communicated by Professor Lewis Russell.

"Account of the present condition of the Endicott Pear Tree."

"This 'Old Pear Tree' is situated on the southern side of a gentle slope of land, and sheltered by it, in some measure, from the piercing north winds, in what was once the garden of Governor Endicott. The surrounding soil is a light loam, with a substratum of clay. Its appearance at this time, is rather dwarfish, being only 18 feet high, and 55 feet in circumference of its branches. The trunk exhibits all the marks of extreme old age, being entirely hollow, and mostly open on the south side, with just sufficient bark to convey sap to its branches. It is seven feet four inches in circumference near the roots, and is divided into three parts, two of which are connected to

the height of 18 inches, the other is entirely distinct, from the ground upwards. There is no bark only on the outside of these divisions until they reach the height of seven or eight feet, where they are completely encircled with it, and form distinct limbs, with numerous lateral branches, all of which appear in a perfectly sound and healthy state. Two suckers have sprung up from the roots, one on the north east, and the other on the south west side, each 10 or 12 feet in length; and I presume it is known that this tree has never been grafted, but is natural fruit."

No doubt the dilapidated condition of the trunk is owing in a measure to the want of care during the most part of the two first centuries of its existence, being situated in an open field, without any protection, and often browsed by cattle and injured by storms. This patriarch within the last forty years has often suffered from easterly and southerly gales. In October, 1804, it was nearly prostrated, being shorn of all its branches, and its trunk split and divided in the manner before spoken of. In the heavy gale of September, 1815, it was again doomed to a similar fate; almost all its limbs at that time were either split or broken, and it appeared doubtful for some time, if it would ever recover; but such was the wonderful tenacity of life that it rose again, phoenix like as it were, from its very ashes. At this time the soil was loosened about its roots, and for the first time probably since its introduction into this country; there was a large quantity of manure around it. About the year 1823 it was protected by a fence, to prevent the cattle from injuring it. It continues to produce fruit yearly, and the average quantity for several years past has been about two bushels."

With proper care and attention, this tree may yet continue many years, and will serve to remind us, by its own trials, strength, vigor and durability, of the enterprize, hardships, perseverance, and untiring zeal of our ancestors in the first settlement of this our cherished land; and may we be permitted to encourage the hope that it may prove the precursor of the durability of our present free and liberal institutions."

"Salem, November, 1837."

“The Endicott Pear Tree.”

The Endicott pear tree is evidently of great age. Its main trunk is entirely hollow, and much shattered. About a foot from the ground it divides into two distinct stems, which although mere shells, yet have produced exceedingly strong limbs. The actual thickness of live wood on the main branch, which faces the west, does not exceed six inches. The eastern branch is much sounder, and supports the greater part of the spray, which denoted the power of producing an abundance of fruit. Proceeding from the root are two suckers, of nearly the same size, one on the eastern, and the other on the western side of the tree, and which are not more than 15 or 20 years old. No perceptible difference can be discovered between them and the tree itself, by comparing the wood. This seems to denote the fact of the tree being a seedling variety. Indeed, its rude character seems to denote a native of the soil. If imported by Governor Endicott, which is according to family traditions, it must have been a seedling variety, and not grafted, none of the usual appearances of a grafted tree being visible.”

“Its general form is low and spreading, about twenty feet high, and nearly the same in extent of branches. The circumference of the stem near the ground is seven feet five inches.”

THE ALPACCAS OF BOLIVIA.

LEGATION OF THE UNITED STATES IN BOLIVIA, }
Cobija, May 1st, 1849. }

T. B. WAKEMAN, Esq.:

Sir—On the 10th of December last, I received in Chuguisaca a letter from Mr. L. T. Brown, requesting, in behalf of the “American Institute of Agriculture and the Arts,” such information as I might be able to give it concerning the “practicability of introducing into the United States, and there domesticating the Alpaccas of Bolivia;” and this information he desired me to communicate to your address, as Secretary of the Institute.

I should have complied with his request at an earlier period, had I not hoped that the return of tranquility in Bolivia would enable me to procure, from public and private sources, the means to do so in a manner corresponding, in some good measure, to your wishes. But the revolutionary state in which I found the country on my arrival here, and which can hardly be said to have had any cessation up to the present time, exhibits even now so little prospect of an early conclusion, that I think it proper to delay no longer a reply to the letter of Mr. Brown.

The "Alpacca" is one of four animals to which the Spaniards in South America gave the general name of "*Carneros de la tierra*," sheep of the country, in distinction from those which they introduced themselves. Of these the "Llama" is the most useful, and the "Vicuña" the most beautiful. The former is somewhat larger than a stag, of various colors, with a long neck, a well shaped head, which it carries proudly erect, and a tread as majestic as that of royalty. Of its long and coarse wool, the Indians make clothing; its flesh serves them frequently for food; and from its services as a beast of burden they, many of them, gain a livelihood. The usual burden for a "Llama," is three *arrobos*, 75 lbs., and it seldom travels more than fifteen miles a day; but it can go by paths which are impassable even for mules, and requires no other sustenance for 24 hours than a few pounds of straw. It has been proposed to cross the Llama with the stronger and fleetier camel of the old world, and such an experiment might be attended with valuable results.

The "Vicuña" is much smaller than the "Llama," a little taller perhaps than a common English sheep, but with not so large a body. It has a long, slender neck, and its head, which it carries high, and a little projecting, attracts attention both for its delicate shape and its brilliant eyes. Its color is usually a light tawny brown, with white belly and legs; and it has a short, thick fine wool. The "Vicúñas" are still quite numerous in the higher parts of Peru and Bolivia; but from the difficulty of domesticating them, they have heretofore only supplied their wool to commerce at the expense of their lives.

The "Guanacos" are less frequently encountered in Bolivia than either of the other animals mentioned. I have seen them in only a single instance while going from "La Paz" to "Oruro," and then not near enough to observe them well. Like the "Vicuña" they prefer the rudest and coldest portions of the Cordilleras, where they feed on a species of wiry grass, called "*Heechoo*." Their color is dark brown, and they have a fine and valuable wool, but they have never been domesticated.

The "Alpacca" or "Paco," larger than either the "Guanaco" or the "Vicuña," but smaller than the "Llama," is chiefly to be found in the higher regions of Peru. Its wool is principally exported from "Islay," the port of "Arequipa," and in smaller quantities from "Arica," the port of "Tacua," and of a part of the northern Bolivia. In either of these ports the animal itself can be procured without much difficulty, but at considerable cost. There is an existing law in Peru, however, which prohibits its exportation, and to obtain the Alpaccas, therefore, from that Republic, special permission would have to be obtained from its authorities in Lima, through the intervention, which I doubt not could be effectual, of our minister there. But the Alpaccas are also to be found in Bolivia. In traveling from Tacua to La Paz, by the elevated route of Tacora and Chulluncayani, I saw these animals several times, feeding in small numbers not far from the road; but though I have since visited Oruro, Chuguisaca, and Potosi, and have journeyed from the latter place to Cobija, I have not met a single Alpacca on the whole route. They exist, however, to a limited extent, in the department of Potosi, and could be purchased, I am informed, so as to be placed on shipboard from the port of Cobija. Their exportation from Bolivia is not prohibited by law. The cost of an "Alpacca" in the neighborhood of its residence, is very inconsiderable, from three to five dollars; but they live a long distance from the coast, and their transportation or journey to the sea, is both troublesome and expensive. I am assured, however, by the manager of the commercial house of Artola & Co., here, that an order for a few of these animals might be readily filled in Cobija, at a price not exceeding ten dollars each.

But a greater difficulty presents itself in their conveyance from the Pacific coast to the United States. To Europe their conveyance has usually been attempted by the way of Cape Horn, but the experiments by this route have not resulted favorably. It is only a few years ago that a large cargo of them, some three or four hundred, I believe, were embarked for England from the port of Islay, after much expense in procuring them, and much trouble, also, in providing them with the necessary accommodations and nourishment on ship-board; but nearly all of them died during the voyage out, and scarcely any of the remainder survived long enough after their arrival to make any adequate return for the difficulty and cost of their importation. Another route which has been at least once attempted, is the overland route by Buenos Ayres. In 1804, more than a hundred of the Peruvian sheep (comprising representatives from each of the four species) were collected by the Governor of La Paz, in obedience to a royal order, to be placed in the garden of the Empress Josephine, at Malmaison. They arrived in Buenos Ayres from Upper Peru in the following year, where they were detained by the existing hostilities between England and Spain, but were carefully provided for and kept together, so as, if possible, to produce new varieties of the animal by crossing the different species. In the taking of Buenos Ayres by the English, they were taken with it, and during the attack of Gen. Whitelocke, in 1806, some of them were shot and others dispersed. In 1808 they were once more collected, (what remained of them) and were sent by the Viceroy Linier to Cadiz, from whence, doubtless, they were dispatched to their original destination. Of the number, however, which had been ordered from La Paz in 1804, only thirty-six were embarked in 1808; and of these, twenty-five died on their passage across the Atlantic, and two others upon their arrival at Cadiz; leaving only nine that arrived in safety. In crossing the ocean, according to the author, (D. Nicholas de Piérola) from whence I gather this narrative, they were fed with potatoes, maize, straw, and bran; but the potatoes failed before their arrival, and they became so much constipated as to require laxatives. Among the nine which reached Cadiz safely, there were three Alpaccas, three Alpa-Vicuñas, (the mixed offspring of Alpaccas and Vicuñas,) two Vicuñas, and one Llama in conception by an Alpacca.

It may be interesting to mention here, that the domestication of the Vicuñas, which, for all useful purposes had previously failed, even when attempted by the indefatigable efforts of the Jesuit fathers, was accomplished a few years ago by the persevering labor of a Peruvian Priest, named Pablo Carrera, who has also succeeded in crossing them with the Alpaccas, and thus producing, in numbers which promise to perpetuate it, the valuable variety above referred to, of Alpa-Vicuñas. These results have been received in Peru with no little enthusiasm, and in August, 1846, the Government of that Republic testified its regard for their author, by ordering his portrait for the Lima Museum, and promoting him from his old diocese to the better one of Cuzco. "From his success," says the "Ateneo Americano" of Lima, "the wool of these animals, (the Vicuñas) the finest and most valuable known, will no longer be obtained by the barbarous method of the savage, who cuts down the tree for the sake of its fruit, but will be gathered periodically, without injury to the animal; while at the same time it will be of superior beauty, and susceptible of every variety of color. Our uncultivated solitudes, where are now seen only a few wandering flocks, which fly from the presence of man, will present themselves in the future, if this discovery shall be fostered as it deserves, covered with sheep of the country, mingling harmoniously with those of foreign origin, and producing fleeces of enhanced beauty and increased value."

Prior to the wars which ended in South American independence, the remittances and travel from Upper Peru to the old world were almost wholly by Buenos Ayres and the Atlantic. They have now, however, taken a new direction, and usually cross the Isthmus from Panama to Chagres. But I have never heard of any attempt to convey the Peruvian sheep by this route, either to England or to the continent of Europe. Such an experiment has probably been prevented from a fear of the heat along the Pacific coast to Panama, and the bad climate and difficult travelling of the isthmus, connected, perhaps, with a probability of greater expense in transporting the animals by this route, than would be necessary to take them by Cape Horn. Yet, with the improvements which are likely to be effected on the isthmus, and the increased communication between our country and Chagres, the Panama route will, in my opinion, offer greater

facilities for the accomplishments of your object than any other. In a good season, and with great care, shearing them before their embarkation, providing good accommodations for them on board the steamers, taking with them for their sustenance a sufficient supply of the Alfalfa of the country, and allowing them to remain as short a time as possible in the wretched atmosphere of the isthmus, I think a purchaser of a small number of the Alpaccas might fairly expect to land them safely in New York, at a cost not exceeding seventy-five dollars each. Once arrived in the United States, I have great confidence that they might be raised with success. Some of them, I am told, have been found to thrive in Scotland, and there is no reason to doubt a similar result upon the hills of New England and in the pastures of upper New York. The cold in these states is often quite as severe as they ever have to endure in Bolivia, and the heat no greater than I have experienced at midday, even in the departments of Potosi and La Paz. Their greater change would be from an atmosphere extremely dry to one comparatively very humid, from the peculiar grass of their Andes homes to the richer nourishment of our pastures in summer and our folds in winter, and from elevations of more than four thousand yards above the sea to a country which rises from the ocean only a few hundred feet. These difficulties however can all, in my judgment, be surmounted; and the experiment of introducing the Alpaca to the United States, is, at all events, worthy of a persevering trial. Larger than any of our sheep, bearing heavier fleeces, affording much finer wool, and with no greater liability, so far as I can learn, to disease, whoever shall secure their domestication among us, may well be regarded as a benefactor to our agriculture.

Without, however, trespassing further upon your time, I trust you will find in this imperfect reply to the letter of Mr. Brown, if not the exact information which you desire, at least some evidence of my disposition to comply with his request, and of my sincere wish to render any service in my power to the agriculture of the United States.

I am, Sir,

Very respectfully,

Your ob't serv't,

JOHN APPLETON.

SUCCESSFUL CULTIVATION OF TEA IN THE U. STATES.

GOLDEN GROVE, TEA PLANTATION, }
Greenville, S. C., Dec., 1849. }

HENRY MEIGS, ESQ.

Rec. Sec. Am. Institute :

Dear Sir—In compliance with your request, I intimated my intention of communicating some particulars relative to the present state of tea cultivation. My tea plants, planted out last December, after passing through the ordinary trial of transportation, change of climate, soil, cold and heat, drought, inundation and cultivation, became naturalized. The plant now testifies for itself, by its vigorous growth in branch and stem, bud, blossom and foliage, to the entire satisfaction of the cultivator, and by the tardy and somewhat reluctant acknowledgments, by multitudes who have seen the plant, of the complete success of the experiment. The gradual development of the plant was curious and interesting. When I arrived at the tea garden from New York on the first of April last, there was not a single leaf to be seen, and the wise and knowing ones of Greenville considered the plantation as doomed to an ignominious end. But they were not aware that I learned, upon enquiry, before a single plant was set out a year ago, that the frost here never penetrates the ground more than three inches during its greatest severity, and guided by that fact I had taken the precaution to place the roots of all the plants below the freezing point. I was sorry to see that the plants during my absence in New York, had been most provokingly neglected, and no protection whatever provided in case of severe frost, as I had particularly directed. But my confidence was not shaken, because I well knew that if the root survived, the branches and foliage would in due time appear. I was not mistaken. On the seventh of April the first sprout appeared above the ground, and the leaf buds began to break. I hailed them as the olive leaf in the beak of the dove, indicating the subsiding waters of trouble and the renovating of tea vegetation. The roots had suffered by heat in transportation and packing, and undoubtedly were checked in their growth by weakness and cold. The growth of the plant was consequently slow, necessarily so, under the influence of a chilling, cold, and backward spring, but the sprouts and

foliage continued to advance in growth. In May, one plant, twenty inches in height and circumference, withstood, unprotected, all the severe frost of February, and is coming out this month (May) in numerous buds. It shows conclusively the strength, vigor and hardihood of the plant uninjured by the heat in packing, and the rigor of the winter. On the 20th Sept. the first tea bud came into full blossom. The number of plants and of buds blooming beautifully and daily increasing. The blossoms still continue to develop and probably will until spring. On the 20th Dec. I had sixteen plants in full blossom, and as they drop off in about four days, other plants take the place of those that have finished blossoming, and we see a pleasing union of winter and spring all giving promise of a harvest of seed next autumn, when the blossoms of this year mature their fruit.

The climate, soil, and general aspect of the garden, although not such as I would wish, owing to the haste in which I, an entire stranger, with the cases of tea plant in my hand, was obliged to take up, the land still agrees wonderfully with the plants, and leaves no room to doubt that future plants, the arrival of some of which I expect next month, planted out in a more genial soil, more favorable aspect, and a climate equally salubrious, will find a domicile, at least equally agreeable and propitious to their growth. My expectations are fully realized so far, and I feel that I have abundant reason to be deeply thankful to the Great Author of vegetation for the signal blessing upon the undertaking. My plantation at Golden Grove is now under cultivation, and designed to receive the plants and seeds of this spring's importation.

Yours truly,

JUNIUS SMITH.

THE GRASSES OF THE UNITED STATES.

By JUDGE VAN WYCK, of the Farmers' Club of the American Institute.

American Grasses. We say American because we mean to examine those which are indigenous or generally so considered to our country. Although some of these whose character and uses we may look into, may not be natives or their nativeism may be questioned, yet they have been so long cultivated among us and their usefulness so well established, their character and habits so congenial with our various soils and climates, and all this proved by many years of successful cultivation, we conceive we shall not stray much to style them natives or American. It is not meant to call the grasses here noticed by their botanic names, but to call them only by the names they are generally called and known. It is intended also to use scientific terms as rarely as possible, should brevity or convenience, which is sometimes the case, induce a use of them such use will generally be accompanied with a definition. The botanic names of the grasses can be found in most scientific works, including the leading periodicals of the day that treat on the subject.

The importance of the grass plant to the farmer is greater than any which he cultivates, and he derives more benefit from it, and all indirectly, for it is not his food, than any other plant. The grasses, too, enrich land when properly covering it; they are the best coat of manure for it, a considerable portion of them if only tolerably good, and even if used as pasture, fall or are trodden down and decay, and mix with the earth, and assist in making up what is called the mould or surface soil, the bed or matrix of the whole vegetable kingdom. This bed, or the greater portion of it, whether it consists of the manure of the barn-yard and the homestead generally, and carried out and spread upon it, or of the plants that grow upon it and fall down and decompose and rot where they grow, form what is called the putrescent or organic manure of the soil. No plant can germinate and grow healthily and mature perfectly without it, and a considerable portion of it too. They are called putrescent because they are subject to perish and decay, and organic because they are the remains of organized substances, animal and vegetable, that once possessed

life, and, in some shape or other, are almost the only food of plants. Besides, the roots of grasses aid in pulverizing the soil ; some of them penetrate deep into the earth and render it loose and friable, and make it not only a richer but a softer and deeper bed for plants of every kind.

Without grass (it is meant here good grass) the farm would be of little worth, it would not produce good grain of any kind, if it could not produce rich and plentiful crops of grass. A large stock could not be kept upon it, for there would be nothing, or very little, to support them ; hay, straw, litter for the barn-yard, reduced comparatively to nothing. A great source of manure is here cut off ; then comes the produce of the dairy, milk, butter, and cheese, the fat animals for market, lambs, calves, sheep, wool, fat beef, all derive their existence and profitable condition more or less directly from grass. We will give here an estimate of the value to the nation of two articles of the farm, and derived, it may be said, directly from grass, hay, and butter. The Patent Office reports for 1848, estimate the hay of that year at nearly \$150,000,000 ; and the butter here put down is from another source, probably equally reliable, at \$72,800,000. From the estimate of these two items, an opinion may be formed of the immense value of all others derived from the same source. It may be said that land, if it possesses the necessary mineral ingredients, and happily located in other respects, will of itself produce the natural grasses which will grow luxuriantly upon it, and afford food for animals. So it will, and some of these of the best kind. This is not the case, though, with land that has been long tilled and badly tilled, and a good deal naturally not of the best kind ; every thing carried off, and nothing or very little put upon it in return. This is the case with much of the land of the Atlantic States, and such a system in time must necessarily exhaust and impoverish it ; and it is only to be recruited and restored by proper cultivation of the best grasses that will grow upon it, and the system of pasturage. The best scientific writers upon Agriculture, both ancient and modern, and those best acquainted with it in theory and practice, all agree that old, exhausted, worn out lands, cannot in any other way be recruited and restored so quick, cheap and effectually, as they can by a judicious pursuit of this system. Lands in good condition can be preserved so longer

by it, and such a state, it may almost be said, made perpetual. The alluvial lands of the west, its rich bottoms and prairies, may in time be exhausted, or a great portion of them may, and all certainly rendered much less productive by bad tillage, and carrying all off and putting nothing on in return. A rich sward or thick turf, too, protects the earth from the sun in summer, which exhales from these naked lands the little moisture and fertility they have left ; from heavy, drenching rains which cut unsightly chasms in them, and otherwise deface and injure their surface ; and from the frosts in winter which heave out the roots of the few sickly, straggling plants remaining, and they perish for want of warmth and support from kindred social plants. Thus the barrenness of land so managed is complete, and will continue, unless the system of culture is changed ; and the change to renovate its fertility can be made in no other way so cheap and effectual, as by throwing over it a rich, close carpet of grass. This will not only protect it from variations of the seasons, but the manure derived from decayed herbage and pasturage, would secure and continue the renovation. Some opinion may be formed of its importance from the estimate here given of two articles, the hay and butter of the nation ; and these, with most other agricultural products, owe not only their existence, but their quantity and quality, to good grass. In fine, it would not be extravagant to say, this important plant, if cultivated properly, and made to thrive as well as it is susceptible of being made even on tolerable land, is worth as much as all the other products of the farm together. How to perform this cultivation, to accomplish this thrift in the best way, it will here be attempted to show. First, remember that grass generally has many, and a few kinds of it all the main chemical ingredients of the grain plant ; it is supposed they were originally the same plant, and known and called by the same name. To this day, in science all are called grasses ; by way of distinction, though, the grain is termed the cereal grass, being cultivated for its seed, producing a richer food for animals than mere grass ; it is longer in growing generally, and of course consumes more and stronger nourishment in maturing. *Cereal* is from *Ceres*, the name of the heathen goddess of fruits and harvests. The earth, then, on which they are to be grown, should be put and kept in as fine state for the one as the other, with this difference, that the grain requiring more time and more food from the soil to

mature, should have the first benefit of its virgin richness. This it usually has, for the practice with most good farmers is to prepare the land well for grain before planting it; to see first, that it possesses the three essential mineral ingredients, silica, or sand; alumine, or clay; lime, or calcareous earth; in some shape, all in due proportion. Then the manure scraped from the barn yard, homestead and farm, every thing in the shape of decayed animal and vegetable matter, all properly preserved, mixed and composted, and applied at the right time and manner. Then the tilling, plowing, harrowing, and if convenient, rolling; plowed and manured deep, destroy all weeds, and even grass, at this period; let them aid the manure; pulverising, deepening, cleaning and enriching the bed, are the great objects; constantly keeping in view that all this preparation is not for the grain crop alone, but for the grass, by far the most important, which is to succeed it. If the latter does as well as it can be made to do, it is to aid materially in producing several grain crops, and many other articles very profitable to the farmer. Timothy and clover are the grass seeds generally used for permanent pasture; whatever kind is used, should be of the purest, soundest, and best of its kind, and especially free from foul seed. These are to be sown after the winter grains, wheat and rye; it is usual to sow timothy in autumn, and clover in the spring. Whenever sown they should be sown separately, not mixed, and at different times. Some farmers sow their grass seeds in the spring with their oats; this is not safe, the grass seeds are apt to miss; the oats, if they are large and heavy, as they some times are, choke and smother the grass when it comes up, and it perishes. Although some times the grass seeds take, grow, and do very well when sown with oats. The grass seeds, whether from economy or whatever cause, are generally sown too thin; it is a great mistake; like most other seeds, it must be expected some of these will not come up, they will miss; and when they do come up they should come up thick, stand close, to protect and support each other, and provide against many accidents, and possibly a total failure or near it. This would be a much greater damage than a few dollars more laid out in an additional quantity of seed; more than a peck of timothy and a half a bushel of clover seed to the acre; and a few good farmers are known to use more to great advantage. The sooner this

close carpet of grass, composed of the purest materials, can be spread over the land, the more durable it will be, and the sooner the farmer will reap his reward and the longer enjoy it, and be remunerated in the end ten fold, for the additional money expended in seed. Gypsum or plaster is applied with advantage to grass in various stages of it ; as a top-dressing it stimulates, and in most cases increases much its growth. Lime, too, applied in the same way, not only stimulates but sweetens it, and stock eat it more freely and with a better relish ; it neutralizes also the acidity of surface soils, prevents mosses and other useless, pernicious plants of most kinds, from infesting soils, and kills insects in their worm state, and protects plants from them in their winged state. A little salt is good sometimes, applied with the lime or gypsum, or by itself.

These ingredients besides other benefits all absorb and retain moisture more or less for the use of plants, and they aid in droughts. Judgment is to be exercised in the use of them, and especially salt, as very little of this serves. The best dependance for the farmer after all from severe droughts and short crops from any cause, is a bed of earth possessing all the necessary mineral ingredients, with a good surface mould of rich vegetable remains properly compounded, mixed and pulverized by good and deep plowing. Such a bed or matrix will attract, absorb and retain for the use of plants more moisture than anything else, besides possessing all the other requisites in the shape of food. Bone earth or phosphate of lime is an important ingredient of soils ; a portion of it is necessary for most plants, and especially the nutritious grasses on which animals principally live, it is the bone forming element. Young animals require more than others. In this stage the bone and muscle form and grow, harden and acquire strength, which of course strengthens the whole frame ; flesh and fat are laid on, and these cannot grow healthily unless they have a good foundation to rest upon. Providence has wisely ordered in this, as in many of the beneficent operations of nature, that the cow in her secretions of milk should absorb more of the bone earth from her system than any similar animal. It has been found by analysis that milk contains considerably more of this ingredient than any substances discharged from her body through other channels, of course her manure cannot contain so much ; a great portion of it has passed off in another direc-

tion. The milk or a good deal of it is made into butter and cheese, and all or most of these generally carried off the farm and sold. In consequence the grass does not get its usual supply of this essential article, it fails, and all the other products from it, including hay, fail in due proportion. This has been found to have actually happened in practice. A few years since many dairy farms in Cheshire, and other districts in the vicinity of London, gradually declined in produce; those who occupied them could not tell the cause, they thought they manured as high as ever and a little higher, all would not do. These occupants were advised to employ a competent chemist to analyse the soils of a few farms; it was done, and they were found deficient in bone earth. The article was immediately procured and applied, and the lands in due time restored to their former value. It is more expensive at first than ordinary manure, but a little of it serves; it is durable too, and its influence is felt for years. A great evil to be avoided by the farmer in the culture of grass is, never to let his stock be too heavy for his pasture, or his means generally of keeping them in the best condition both summer and winter. The greatest judgment must be exercised in proportioning the one to the other; if the farmer errs, let it be on the right side: let his grass be too heavy for his stock, let the former be more than the latter can consume. Here he cannot suffer; the surplus grass falls down, decays and makes manure; the roots are not so liable to injury. The grass is much better the ensuing year, the cattle are in better condition in the spring, they have not been stinted or pinched for hay and feed during the winter, the grass has not been fed close in the fall, nor is it necessary to put them on it so early in the spring. Let the heaviness of a farmer's stock show in their appearance and flesh rather than in numbers. All will ultimately show more *weight* by this system: the cattle, grass, hay, grain and the farmer's pocket.

After showing the best manner of cultivating the grasses generally, it is proposed to look into the character and habits of some of the principal ones individually. First, *Timothy Grass*: This, it is pretty well settled and generally believed is a native of our country, although a few Englishmen have questioned it. It is one of the most valuable of our grasses, especially for the northern and middle states. It does not grow well south of North Carolina, and here perhaps not as well

as farther north. It grows well to the west, particularly in the north western states, but it is not quite so great a favorite here as in the northern Atlantic states. This may be owing in part to the high value they set upon some of the native western grasses, and one in particular called the Kentucky Blue Grass; they consider it (timothy) coarser, harder and drier than some others, and that cattle will not eat so freely, nor will they do so well on it either as pasture or forage as a few other kinds. This is the opinion also of some northern and English farmers. It is believed this is owing in a great degree to the erroneous impression of some—they are few though, compared with the whole number, and it is thought, are diminishing every year—of the proper time of cutting timothy grass for hay. It is contended that it should be cut late, after the seed is formed, or hard or ripe; that much of its weight and nutriment is lost, perhaps more than half, by being cut early; that cattle will not thrive on it so well, and especially horses; that this is the case with some other of our grasses, but more with timothy than any other; that the after math is not so profitable; that the young grass will not grow up so rapidly nor so rich. This it is thought is directly at war not only with the character of the grasses so called, but with the cereals or grain producing plants. The proper time it is thought for cutting the grasses of our country, is when they are in full flower, (timothy excepted); at this period, the juices are more generally diffused throughout the whole plant, the stem leaves and branches, than at any other. These juices constitute the nutriment of the grass plant for animals; they are in greater quantity and richer in quality, a very small portion of them only have passed up into the head or culmen to form the flower; they are more concentrated, have more of the elements of saccharine or sugar, mucilage and starch, which give all the value to the grass plant as feed. The more of the natural juices preserved in grass when cured for hay, the more nutriment the latter contains, and the more animals relish it. When a considerable portion of this, and probably the greatest, passes from the stem to the culmen to form and harden the seed and mature the plant, the lower parts are dry, sapless, and contain considerable woody fibre and very little nutriment. Experience has shown that stock of no kind relish it, and if they eat it, it cannot nor does it keep them in so good condition. This too accords not only with theory and reason in the case, but practice. Four out of five of our

best agricultural periodicals, and the same proportion of our best practical farmers, say that the season of flowering is the best time to cut the grasses for hay, and some of them do not even except timothy. If reason and general practice establish the time or best time, it would seem in this case the season of flowering is that time. This error of late cutting, if it is one, and it is here thought it is, has arisen, it is believed in a great measure, from an analysis of all the best grasses grown in England, made some years ago by Mr. George Sinclair, at Woburn Abbey, under the patronage of the late Duke of Bedford. The results of his experiments were, that all the grasses, and he examined a great many, with a few exceptions contained more nutriment if cut after the seeds were ripe, and timothy more than twice as much, than if cut in the flower. This analysis was sanctioned and endorsed by the late Sir H. Davy, one of the greatest agricultural chemists of his day, and it is thought he gave his name and sanction without testing its correctness by his own experiments; he took it for granted to be correct. This is inferred from his own writings, when speaking on the subject, and no other true inference, it is here thought, can be drawn from what he says. If such is the fact, he gave his sanction no doubt on the high opinion he had of Mr. Sinclair's reputation and knowledge of the grasses, which unquestionably stood high at this time. These are great authorities, and it is not doubted influenced some to take their correctness for granted, as Sir H. Davy did Mr. Sinclair's, without examining thoroughly the reasons of the case, and the opinions in writing of some of the best scientific and practical farmers of the present day. The results of several of Davy's experiments and opinions in agricultural chemistry, have and still are thought to be incorrect, since such men as Liebig, the Johnstons, and some others appeared. Prof. Johnston, of England, in a lecture lately delivered on the subject, says, "the experiments of Mr. Sinclair on the grasses have lost much of their value." Johnston, after giving his reasons for this opinion, and these it is thought have much weight, concludes: "Hence the nature and weight of the dry extracts which he (Sinclair) obtained, could not fairly represent either the kind or quantity of nutritive matters which the hay was likely to yield when introduced into the stomach of the animal." Reasoning from analogy, all the grain plants, after the juices they contain when green, have passed into the culmen or ear to form and

mature the seed, the stems and branches are hard, sapless, and of little worth for anything like feed. This straw, as it is called, is useful as litter for the barn-yard; it aids in making up the compost heaps, and here more by its bulk than any strong fertilizing power it possesses. The grasses too, like the grain plant, when allowed to go to seed, exhaust the land more by standing longer upon it; they draw from it some of its richest ingredients which the plants require to ripen their seeds. The stubble of such grasses have no succulent matter in them, and the after math, the young grass, or second crop, will not grow up near as soon nor as rich. How can they? they cannot spring from the remains of the old stems if they are in the habit of doing it when green, the stems are dry and dead, the roots or some of them are often dead too; these take time for revival. When the young blades do spring up from either or any source, they cannot come up as thick or grow as vigorously, so much of their nourishment has been consumed in maturing the parent plants. The reason given by some that grass if cut late when the seed is hard, is drier, it may be cured better and with less labor for hay. This reason has very little weight when we consider the quantity of fine weather we usually have about the time of hay-making, greater, much, than many European countries, and especially Great Britain. A few hours sooner or later in curing cannot be of much moment, and neither this nor any other reason given for late cutting it, is thought ought to have the least weight when compared with the great sacrifice of nutriment and other injuries stated, must necessarily flow from the practice. Timothy has been excepted from the general rule of cutting in the flower, but by no means to wait till the seed is hard; the best time it is thought for cutting is immediately or soon after the flower has fallen. Timothy, in habits and character, resembles more the grain plant; its stem is thicker and stronger, it grows higher where the soil is rich than most of the grasses: it has more silica or sand in its coating, and is longer in attaining its full size. Hence the juices are longer in reaching all its parts from the root to the culmen, and condensing a little so as to acquire their richest consistence. It is thought that even this plant would suffer less and the injury generally be less if cut in the flower than to let it stand until after the seed is ripe. Timothy too, when cut late, has given rise to the impression made on some that it is a hard, coarse, dry grass; the late cutting is generally the reason

why it is so, and why some have been so impressed. Considerable has been said in discussing this point, it was thought important, as mischief is believed to have resulted from a practice here considered decidedly erroneous. The origin and probable cause of the error having been pointed out, and the more recent researches of science having shown it to be one, and this being in accordance with the opinion of a large majority of the most intelligent practical farmers, it is hoped and believed the practice under it will in time be entirely abandoned. Most of the grasses, and especially timothy, when growing big and rank on good land and in a fine season, are apt to lodge and fall; in this state they should be immediately cut, even if there is no appearance of the flower and may not be for some time. Otherwise laying on the ground thick the lower part becomes brown, it will heat and ferment, and the whole deteriorate much in quality. Timothy, it is thought, does best on a clay loam; like most of the grasses it requires considerable moisture, and in addition to the humidity the soil must be rich, possessing the mineral ingredients in due proportion, combined with plenty of decayed animal and vegetable matter. Timothy being perennial, is excellent to form permanent pastures where it will grow; many of the natural meadow grasses will spring up and grow with it, being of a kindred nature and similar in habits, the soil good, the climate and degree of moisture of the one are congenial with the other. Some of these social grasses have no regular common names, many of them are short and belong to the dwarf family of grasses, but are succulent, and make a rich, nutritious feed. A close carpet of such grasses spread over a low or upland meadow, properly located, soil fine, and with judicious management as to feeding, cleaning, and occasional top-dressings, will last good for many years, with scarcely a rent patch or vacant spot in it. Timothy and all grasses may be cut too young for good hay. At an early period of their growth their juices are thin and watery, have not acquired the requisite consistence, exhale or dry up and are lost; the stems become wiry, hard, and have none or very little nutritive matter in them. In some parts of Germany they cut their grasses quite young, and gather them up immediately and put them, in a perfectly green state, in pits under ground, salt them in layers with the best of salt, and compress them close by weights and let them ferment for a while, letting nothing escape from exhalation,

preserving all the juices ; and these in time, with the dissolved salt form a rich paste, matted and adhering to the stems, equally diffused through the whole mass. In this state, when taken out in winter, it is sweet and fragrant ; cattle eat it greedily, will thrive on it, and much less of it serves. The usage is stated here, and probably in correctly, as nothing is practically known of the process in our country, not with any expectation of its being adopted or tried, but to show what can be done with the article grass, in its green state, and how essential its natural juices are to make the best forage, as well as pasturage.

Redtop, or as it is generally called south of us, *herdsglass*, and by some *redtop timothy*, is an excellent grass ; it has something of the character and habits of timothy so called ; it requires a humid, rich soil, one in which clay predominates ; rather a bushy top, composed of several small stems, shooting out from the main one laterally, near the top ; rich in juices, makes fines hay ; cattle are fond of it ; should be cut about the time of timothy, or when in full flower, it matters little which.

Orchard grass, or *cocksfoot* ; much esteemed by many, especially in Pennsylvania and some other States ; it is highly valued for both pasture and forage ; rich sandy loam suits it best. One remarkable quality it possesses, is to start up and grow immediately from the stem, when cut or fed off, not waiting for fresh shoots to spring up from its roots, nor the healing of its wounds, and has been known on good soils to grow an inch in twenty-four hours from the time of cutting. Messrs. H. Powell and L. Jones, of Pennsylvania, speak highly of it ; thick sowing necessary, great care in gathering and preparing the seed. Mr. Powell recommends at least two bushels to the acre. The great objection to it with some who have cultivated it, is that it will grow in tussocks or detached bunches, leaving naked spots, which are not easily filled up with other perennial grasses. Whether this was owing to the habits of the plant, too thin sowing, or any other cause, is not known.

Kentucky Blue grass. This is the favorite grass, and deservedly so, of the west. Kentucky soil and climate seem to be most con-

genial with it, and is said to be its native locality, although it grows well, and even luxuriantly, in many other sections. It is the best grass for woodlands of the west, when cleared of their underwood, rubbish and decayed trees; these are cut, dug up, collected and burnt, the ashes supplying the soil with potash, so necessary to the growth of plants, and especially grasses. These woodlands, on many large farms of the west, are extensive; they are thus rendered both beautiful and useful, by being converted into shady lawns and fine pastures. This is not the only valuable quality of blue grass, that it grows more luxuriantly on woodlands than any other grass. Its superiority as a rich and permanent pasture on cleared, open fields, is equally great, and greater, it is thought, for Kentucky and the western country generally, than any other. It should be sown in the spring; a calcareous soil, or that of limestone regions, is the best for it. It is a very delicate plant when it first comes up, and should not be grazed for a year unless very vigorous, and not then till the seeds mature; these fall down and thicken the bed, enrich and strengthen it; and with such management a luxuriant coat of blue grass succeeds, and lasts it may be said forever, or certainly as long as desired, without any further trouble. Besides, it grows more nutritious with advancing age, and will ultimately root out every other grass, even the native white clover; and no other can compare with it as a winter grass. It not only grows in the warm spells of winter, but if the second growth of summer be reserved for winter grazing, it is an excellent pasture for horses and cattle throughout that drear period. Both of these keep in the best condition upon it, and without any other food, except in cases of deep snows, which do not often occur, when a little hay is necessary. An eminent Kentucky farmer, has said "he had no doubt he could raise large fat beeves on blue grass and nothing else." The great errors to be guarded against are early spring feeding and over stocking, especially when young and tender, and before its gets a vigorous start. Whether it would make as good hay as timothy and redtop, or even clover, some doubt. It is thought, though, from its habits and qualities, if properly cured, it would make as good hay as any other grass. We have in our State a native blue grass, so called, it is thought not to be genuine Kentucky blue grass; ours is a dark green, a little bent, requires a moist clay, rich soil; does not grow tall, but short and thick on the ground, has

no tinge of blue ; the Kentucky kind, held in a certain position to the light, has a perceptible shade of blue. Whether it would grow north on a calcareous soil, and not degenerate, has perhaps never been fairly tried. If it would grow and flourish here as it does in Kentucky or the west, it would certainly be a valuable acquisition to our farms.

Clovers. First, Redtop clover is undoubtedly an imported grass, used in most parts of Europe with great benefit ; it is also in as general use with us, and with equal benefit. So popular is it almost every where among us ; grows in such luxuriance and abundance on almost all soils, at as little risk and labor as any of the nutritious grasses, and less than some of them, especially on good sandy loams ; so long cultivated throughout our land, that it is considered in the light of a native, and hardly known or thought to possess a foreign origin. Its system of stems, leaves, roots and foliage, surpass in size, tenderness, beauty and richness any of the grasses, taking all its advantages into consideration. It is equally good for forage and pasture ; its long roots penetrate deep into the soil, keep it loose and friable equal to a plowing, and better than some plowings. If the land is in a proper state for the seed, and this good, its growth is so rapid, thick and tall it chokes and destroys all weeds : none can grow among it. When young and succulent, cattle are tempted to eat too much of it when first turned in it, it often gives them the hoove ; timothy, orchard grass, &c., sown with it will generally prevent this ; it should be cut for hay before the flower is fully blown. It leaves the soil in a fine state for tillage, planting any of the grains, roots or vegetables. It is considered a biennial, at most triennial ; it has been known though to last six or seven years on rich land, and with good management. There are several other clovers, some native and others probably foreign, some of the dwarf class very nourishing feed. The *White Clover* grows low and thick on the ground, and is thought a native, comes up naturally on most untilled soils, especially where clay predominates ; it is excellent for milch cows.

Smooth-stalked Meadow grass is said to be a native ; is well adapted, none perhaps better, to laying down permanent pastures and meadows. An eminent farmer of our country says, it is equal to any

of our grasses; its foliage begins to shoot and put on a fine verdure quite early in the spring. Every animal that lives on grass is fond of it; makes hay that may be classed among the best. It delights in rather a dry than moist soil, and still it thrives well in rich meadows, if they lay a little low. It was of this grass that the American prize bonnet, in imitation of leghorn, was manufactured some years ago.

Fowl Meadow grass was first discovered in a meadow in Massachusetts. It is supposed the seed was brought there by water fowl: hence its name. It is an excellent grass for wet meadows, and has been known to yield three tons to the acre in one season. It remains so long green that it may be mown at any time from July to October; it makes very good hay for both horses and neat cattle.

Floating Fescue grass. This plant delights in very wet grounds, and is often found in rich swamps, bogs, ditches and ponds; it is singular in its habits, growing as well in as out of the water: it flowers in June. Horses and cows especially, are very fond of it, and it is said the Cottenham and Cheddar cheese owe their great excellence to this grass, and it imparts a rich and peculiar flavor to the milk of cows fed upon it; their butter also is of the best quality. It is a native of our country. One gentleman who had every chance of knowing its qualities says, it is greedily devoured by every species of stock, not excepting poultry, which eagerly devour the seeds: these are small but very sweet and nourishing.

Ribband grass. This grass, if it possesses the fine qualities which it is said to do, is likely to become of great value in our husbandry; it is no doubt American. The late Judge Buel had such an opinion of it that he said it bid fair to become the game grass of the north. The value of this promising grass was discovered incidentally, and is thus told by Mr. Robinson, of New-Hampshire. A neighbor wishing to get rid of some of the roots which encumbered his garden, pulled them up and threw them into an adjoining bog, where they took root and spread over a large space, excluding every other plant. The water flowed through the roots at all seasons, yet the turf had become so solid as to bear a cart and oxen. It makes the best of hay and pasture—produces a great burden, and springs up immediately after

the scythe ; stock of all kinds devour it as greedily as hay or grass. It is perennial—spreads rapidly, and may be easily transplanted. It is a few years since this account was given ; whether the grass held its character or improved as was anticipated it would, is not known. Experiments, as with every thing of the kind no doubt, were necessary to establish its character.

Gama grass is a native of the southern parts of the United States. It has, however, been found wild as far north as the banks of the Connecticut. It is a remarkable grass ; its growth and produce prodigious, indeed almost incredible, and could not be believed were the statements not made by gentlemen entitled to the fullest confidence. Although stout and coarse, it is succulent, and all kinds of graminivorous animals eat it with the best relish. Mr. Magoffin, who first introduced its culture into Alabama, where it is said to abound in its wild state, says that when all surrounding vegetation was destroyed or burnt up by drought, this grass was green and flourishing, and that in the month of July it grew forty-three inches, and this during a drought. The editor of the American Farmer, some years ago, received a blade of this grass in a letter, measuring thirty-two and a half inches in length, the growth of twelve days.

There are a number of other very useful grasses of our country not here noticed ; some of them have a foreign origin, and others, no doubt, are natives, and all so domesticated, and their good qualities so well established by long culture, that we are in the habit of considering them American. Some of our grasses, especially of the dwarf class, and on some accounts among the best, have no common names by which they are generally known. Most of them, no doubt, have botanic names, especially those of foreign origin ; but this is not enough, it renders it difficult to identify them ; their spread and circulation are restricted through our land ; they cannot be described in writing so as to be understood. It is proposed, if this subject is pursued hereafter, to suggest a remedy for this difficulty, that is, to establish Grass Conventions throughout our country, something like the Fruit Growers' Conventions, to select and give suitable common names to such useful grasses as are not known generally to have any. This, it is thought, will facilitate the transmission of seeds and plants

from one section of our country to another, and thereby spread more extensively the more useful and profitable class of grasses.

This subject of grasses is a voluminous one ; more has been said upon it than was at first intended ; more remains to be said, although relating only to the American grasses, or those known or believed to be American. It is not judicious to extend a subject of this kind to an unreasonable length ; this deters many from reading very little or any part of it, and its merits (if it possess any) are in a great measure lost.

It is not meant here to dispense with or even depreciate the use of science in relation to the grasses. Let those who are qualified and choose to exercise their skill and diligence, do it ; they may often aid by it fixing on the most appropriate common names for grass plants, as these scientific names are usually selected with some meaning, they have a view to the habits, qualities, and character of plants.

BUTTER.

It is well known that butter is the oily part of milk ; of greater or less consistency, depending very much upon the nature of the animals which afford it. The average produce per cow of butter, has been estimated at 168 pounds per year. It has been ascertained by experiment that 100 parts of cream contains $4\frac{1}{2}$ of butter, and $3\frac{1}{2}$ of curd. We have the authority of Dr. Brande, for saying that butter will not keep good unless the adhering curd is thoroughly separated from it. This may be done by carefully melting it by the heat of a water bath, at 170° Fahrenheit, and continuing it in a liquid state some time, so as to effect a complete purification ; the liquid butter should be decanted, strained and salted, and if put in small jars closely covered, it may be kept for a long time nearly fresh. Cleansing butter from the curd can be very effectively done by thoroughly washing and working it in cold water. The latter process is generally preferred, because of the injurious effect on the

flavor of butter which results from melting. If the latter be adopted, the washing must be continued until the curd is thoroughly removed, the particles of which are very putrescible, and if permitted to remain will prove very injurious. The water should always be expressed to the greatest possible extent, before salting. It is the opinion of some, that the oxygen of the water, uniting with the oil, forms that peculiar acid which causes the butter to become rancid. If this be so, it must be owing to its excess, since during the operation of churning, oxygen is always absorbed.

We are assured by an agricultural gentleman of great experience, that the best method known to him for removing the curd, is to mix with the butter when removed from the churn, sugar and salt, say two table spoons full of salt, and one ounce of clean sugar, to twelve pounds of butter. This mixture seems to dissolve the curd, and by working thoroughly, it can be disengaged to any desired extent, and the flavor of the butter is improved.

The Dutch salted butter from Holland, of which vast quantities have been exported to England and various parts of the world, has sustained an undeviating reputation for a long period of years, and at this day, probably, is as good for exportation and use as any that can be found. It owes its reputation, we understand, more to thorough purification and cleanliness, than to any other cause. Butter made in hot countries is generally liquid. In India it is prepared from the milk of Buffaloes, and called *ghee*.

“The Arabs are said to be the greatest consumers of butter in the world. It is a common practice for them to drink every morning a coffee cup full of melted butter or ghee. The poorest individuals will expend half their daily income to procure it.” [*Travels in Arabia*.
m

The price of butter, with the exception of occasional years of scarcity, has been slowly advancing. Mr. M'Culloch furnishes tables of the contract prices paid for butter at the Greenwich Hospital, where sound merchantable butter is required, for a period of 192 years, from 1730 to 1832, from which we make the following summary :

In 1782 the price paid was.....	10	cents per pound.
1790 it had gradually advanced to.....	13	“ “
1806 a more rapid advance to.....	23	“ “
1812 still advancing,.....	31	“ “
1817 declined to.....	18	“ “
1823 a further decline to.....	15	“ “
1827	16 $\frac{1}{2}$	“ “
1832	17 $\frac{1}{2}$	“ “

The quantity of butter consumed is immense. We have no data from which to deduce an accurate estimate. Assuming, however, the population of the United States to be twenty millions, and that each person consumes half a pound per week, it requires 520,000,000 pounds to supply the consumption for one year; the cost of which, at 14 cents per pound, would amount to \$72,800,000. Assuming, also, that each cow will yield 168 pounds per annum, the milk of 3,095,278 cows would be required to produce the butter.

The specimens of butter exhibited at our twenty-second Annual Fair, were numerous, and the quality pronounced to be very superior. Butter making, like many other products of agricultural labor, does not, as a general thing, bring a very profitable return to the producer. In close proximity to our largest cities, we have heard farmers say that it was more profitable for them to sell their milk at one and a half cents per quart at their own doors, than to put it into butter and take the chance of the market. We apprehend this product may be made more lucrative, by proper care and attention in the manufacture of it, and also to the best method of putting it up for transportation, so as to preserve its sweetness. Pure sweet butter is generally in demand, and in some countries it always commands a price that will justify the expense of very costly methods for preserving it during the necessary time required for its transportation. In China, for instances, sweet butter brings from 75 cents to \$2 per lb. California, for some time to come, will undoubtedly be one of the most profitable markets for good butter, ever known. The vast prairies of the west may be made to produce immense quantities of butter; and transportation, through the agency of canals and railroads, constantly augmenting, will shortly afford all possible facilities.

We will suggest a method of putting up butter for transportation and export, which may be found worthy of consideration, and perchance of a trial. Enough has been said on the importance of removing the curd to the greatest possible extent. In the next place the quality of the salt used, must not be lost sight of. We are inclined to believe that nothing short of the purest rock salt should be used. It is of great consequence that the churning be done in a pure atmosphere, one that is free from any taint whatever. Butter churned in a tainted atmosphere will not keep long, and the quality of the butter for immediate use will be impaired in proportion to the quantity of filth which float in the surrounding atmosphere. Cleanliness, in all respects, is of the greatest importance. Kegs, made to contain 20 to 25 pounds, and made of well seasoned white oak, strongly hooped, are recommended, in which to pack the butter. This is an acceptable quantity to consumers, and particularly so in foreign markets, where prices are high; it will invariably be preferred, even at an advance. The kegs, before being used, should be scalded with a strong pickle made with rock salt, and the pickle left in them until they are perfectly saturated therewith. The kegs, after being filled with butter and headed up, are to be packed in tierces of convenient size for transportation, made also of good white oak and well hooped. The kegs being closely packed and the tierce headed up, fill the tierce with strong pickle of the same salt, and it is ready for transportation.

WINE.

Specimens of domestic wine, from several of the native grapes of our country, have been presented at the annual exhibitions of the Institute for several years past; none of which, with the exception of a passable wine from the Scuppernong, have attracted much attention, until the present year. At our late fair, specimens of "Sparkling Catawba," from N. Longworth, Esq., of Cincinnati, were received and tested, in conformity with the request of Mr. Longworth, by competent judges, in comparison with an approved Champagne of France. The judges to whom this subject was referred, concurred

in opinion that it was the best American wine they had met with, and reported as follows: "The Sparkling Catawba, vintage of 1847, is a sound good wine, and compares well with the Russian Eagle Champagne of France." It was tested by several gentlemen of repute, as judges of wine, who pronounced it good, and were it to be had in this market, would undoubtedly become a favorite. The peculiarly rich aroma of the Catawba grape is very conspicuous in the wine.

Among the great variety of native grapes with which our country abounds, it is to be presumed there are some, if not many, which if cultivated for that purpose, are capable of producing very good and cheap wine, and probably some of very superior quality; and why should it not be so, seeing that we cover all the latitudes and have all the varieties of climate and soil which produce the wines of Europe?

The following quotation is from "James' Expedition to the Rocky Mountains," wherein the author asserts that the *Vitis VINIFERA* is found in America in its wild state. "The small elms along this valley were bending under the weight of innumerable grape vines, now loaded with ripe fruit, the purple clusters crowded in such profusion as almost to give a coloring to the landscape. On the opposite side of the river was a range of low sand hills, fringed with vines, rising not more than a foot or eighteen inches from the surface. On examination, we found these hillocks had been produced exclusively by the agency of the grape vines, arresting the sand as it was borne along by the wind, until such quantities had been accumulated as to bury every part of the plant except the branches. Many of these were so loaded with fruit as to present nothing to the eye but a series of clusters, so closely arranged as to conceal every part of the stem. The fruit of these vines is incomparably finer than that of any other native or exotic which we have met with in the United States. The burying of the greater part of the trunk with its larger branches produces the effect of pruning, inasmuch as it prevents the unfolding of leaves and flowers on the parts below the surface, while the protruded ends of the branches enjoy an increased degree of light and heat from the reflection of the sand. It is owing, undoubtedly, to these causes that the grapes in question are far superior to the fruit of the same

vine under ordinary circumstances. The treatment here employed by nature to bring to perfection the fruit of the vine, may be imitated." &c., &c.

Humboldt says, "that, in order to procure *potable* wine, it is requisite that the *mean annual heat* should exceed 49° , that the *winter temperature* should be upward of 33° , and the *mean summer temperature* upward of 64° ." His remarks on this subject are deeply interesting. See his *Asie Centrale*, tom. 3, p. 159.

Some may think it impolitic to encourage the production of wine, because of the apprehension of a demoralising effect which may arise from its use. It has, however, been asserted, and remains uncontradicted, that the inhabitants of the wine producing districts of Europe are, as a whole, the most temperate people on earth; though they constantly use as a beverage the cheap wines of their country with decided benefit. The mass of laborers in those countries are said to enjoy almost uninterrupted health.

Some wines contain a much larger quantity of alcohol than others, and the quantity which is contained in all kinds of wine varies with the varying seasons. Experiments which have been made with great care by the most celebrated chemist, taking forty-two different kinds of wine, show that it varies from 24 to 8 per cent; Port wine containing the greatest, and Hock the smallest quantity. The cheap wines of Europe, which enter so largely into the consumption of those countries, contain less alcohol than the cider of our own country. The use of cider as a common beverage, it is said, has materially diminished in the northern sections of the United States, in consequence of a belief, prevalent to a large extent, that its use is productive of, and extremely injurious to, persons afflicted with chronic diseases. Its disuse, if it be so, may with greater propriety be attributed to the negligent manner in which it is prepared, as a general thing.

The consumption of wine in the United States appears to be on the increase; the importation of 1848 being nearly double that of 1844. The amount imported annually, falls very far below the whole quantity

consumed, under the name of wine. The excess is made up of drugs and materials, it is to be feared, of a very unhealthy and deleterious character. This horrible trash is administered to the sick, to no small extent, among the laboring poor. We cannot refrain from propounding to ourselves this question, viz: Would it not be better to encourage the production of a pure and healthful article to serve the demands of the people, and add a profitable pursuit to agriculture, rather than tolerate the abuses which do exist and which are rapidly accumulating? Having said thus much on the subject of wine, we ask a perusal of the following

LETTER FROM N. LONGWORTH, ESQ.,

Relative to the Manufacture of "Sparkling Catawba:"

CINCINNATI, *August 27th*, 1849.

TO THE TRUSTEES OF THE AMERICAN INSTITUTE :

Gentlemen—I send for trial, a half box of sparkling Catawba wine, the pure juice of an American grape, and wish its qualities tested at your approaching annual Fair, and should prefer its being tried in competition with an approved French champagne.

I regret that I cannot attend your Twenty-second Annual Fair, and that I cannot send you as good a sample of Buckeye wine as I intend to do next fall. The vintage of 1847, (which this is), was not of the best quality, and the manufacturer I then had, has not the knowledge, talents, or education of the person I have recently obtained from France. Confident of eventual success, I shall spare neither labor nor expense, in pushing a hobby that has employed my mind for twenty years. My present wine-house was built for that object, but finding it not fully to answer expectations, I am erecting one 40 by 120 feet, three stories high, with a lower cellar twenty-three feet below the surface, and large enough to manufacture 200,000 bottles of sparkling Catawba wine per year. I may not live to manufacture so large a quantity, but if I do not, the fault shall not be mine.

Yours respectfully,

N. LONGWORTH.

FLAX.

In the early period of the agriculture of our country, flax was a crop comparatively of great value ; there was then scarcely a farmer who had not his field of it. The hum of the spinning wheel, was the music of the cottage, and the distaff was familiarly known as an indispensable household utensil. The females, who could spin their "pound a day," looked to that as their chief source of employment and income. Such were among the early days of our agriculture. But the ever varying changes in the scene of human life, have almost obliterated a remembrance of such pursuits and productions. The spinning wheel has gone to the tomb of the Capulets, and the distaff is known no more. Progress aims at a higher destiny ; we hope it may produce a happier condition.

Machinery has taken the place of hand labor to an almost incredible extent in producing the requisites for our supply, and yet there is no diminution of the demand for labor. The ingenuity of our Whitney made the cotton crop nearly sufficient to clothe mankind, whilst Arkwright's genius accomplished the means and varied forms required, from the coarse fabrics to the finest tissues, superceding, to a large extent, the "fine linen," so much esteemed and anxiously sought after in the early period of the history of man. Linen still holds a deservedly high rank in the general estimation, and ingenuity should not suffer it to pass unheeded.

It is about 50 years since the first attempts were made to spin flax entirely by machinery ; little or no success then attended the enterprise. At a later period the attempt was revived, and by cutting the flax into short pieces, the process was considered to have been improved. But it was soon found that by cutting the fibre the quality of the flax was materially impaired, and the plan was abandoned. More recently, machine spinning has attained a degree of perfection, without injury to the fibre, said to approach nearly to that of cotton. There is nevertheless room for improvement, presenting a field worthy the attention of enterprise and skill.

The entire value of the linen manufactures of England and Ireland, is now estimated at \$38,400,000 per annum, giving employment to 185,000 persons. This shows us the importance of encouraging the production of this staple as beneficial to the farmer and the mechanic. The following table, compiled from official documents, shows the value of the importations of linen into the United States for a series of years past. The variations in quantity from year to year are very great, for which we do not immediately perceive an adequate cause.

Imports of Linen.

1830, in value,..	\$2,911,280	1838, in value,..	\$446,097
1831, do ..	3,790,111	1839, do ..	971,787
1832, do ..	4,073,164	1840, do ..	435,346
1833, do ..	3,132,557	1841, do ..	642,038
1834, do ..	785,891	1842, do ..	3,659,184
1835, do ..	539,453	1844, do ..	4,492,726
1836, do ..	1,035,680	1843, do ..	6,644,648
1837, do ..	692,804		

Thus it would appear that the importation of linen, notwithstanding the fluctuations in quantity from year to year, is largely on the increase. Since the advancing perfection of machinery is gradually lessening its cost and increasing a demand for it, it would seem to be expedient for us to begin to look about and provide measures by which we can profitably encourage the production and manufacture of this important staple of our own country.

Such were the views of our worthy President, General James Tallmadge, when in 1847 he offered as a special premium a gold medal, for the best piece of linen, of not less than thirty yards, wove by power loom. There was no claimant for this award until the Fair of 1849, when it was taken by Mr. Henry H. Stevens, of Webster, Massachusetts, who exhibited a piece of linen, of the required dimensions, of good texture, spun by machinery and wove by power loom, it being the first piece of American linen, thus fabricated, which has graced the Fairs of the American Institute. Mr. L. T. Beardsley, of Waterford, N. Y., had previously shown linen thread spun by machinery, of a very superior quality. We shall look with increased

anxiety at our next Fair, for improved specimens in this exceedingly important branch of manufactures.

We intended to have mentioned before, and we have the fact from the most undoubted authority, that in the northern part of Portugal a large quantity of excellent flax is annually produced, which is spun and manufactured, in the old fashioned way, into a variety of articles, which find a ready market in Brazil.

IRON.

Every improvement in the conversion of iron, from the ore to a malleable state, by which its cost is reduced, is of immense importance, and entitled to the highest award. The specimens of iron, made by a new process, invented by Mr. S. S. Salters, and now in operation at Boonton, N. J., were considered by judges to be of good quality. The whole process, from the ore to malleable iron, is conducted in a single furnace, with anthracite coal. The furnace contains three chambers, one above the other, the lower one being reverberatory. The ore is pulverised, and also the coal, and these mixed together are placed in the upper chamber of this furnace, where they undergo a process of baking, by which the gases are disengaged and driven off. The mass is then passed down the flue of the furnace to the middle chamber, where the fluxing materials are added. In these two chambers the ore is thoroughly deoxidised and prepared for the puddling chamber, to which it is conducted through the flue, as before, where the process is completed. It is stated that the time consumed in conducting the operation does not exceed two hours. The friends of this work, and those immediately interested in the experiment, are sanguine in their expectations of success.

It appears that a patent was granted to Mr. W. N. Clay, in England, 1840, for a mixture of 28 per cent of carbonaceous matter with ground iron ore, containing 45 per cent of metal, which mixture was to be directly treated in a puddling furnace. We have no knowledge of the result of this process.

The iron exhibited by Messrs. Cooper and Hewitt, Trenton, N. J., manufactured into wire and wood screws, is from the Andover mine in that State, made entirely with anthracite coal, by the puddling process, and pronounced by our judges to be of very superior quality. These gentlemen are largely engaged in the manufacture of railroad bars from the same quality of iron, and we hazard nothing in saying that these bars are worth from 15 to 20 per cent more than any railroad iron which has been imported. There was a blast furnace established at the Andover mine during the Revolutionary war, at the close of which, some of this iron was carried to England and there made into steel; it was pronounced equal to the best iron they had ever found for that purpose. All, or nearly all the steel made in Great Britain, is made from Swedish and Russian iron, and the quality of the article depends in a great measure upon the quality of the iron before its conversion; for although poor steel may be made from good iron by conducting the process improperly or imperfectly, a good article can not be produced from iron of inferior quality. For the finest and most important purposes, the Swedish and Russian iron is generally employed for conversion by respectable manufacturers. Dr. Ure says, "with the exception of Ulverstone charcoal iron, no bars are manufactured in Great Britain capable of conversion into steel at all approaching in quality that made from Madras, Swedish, and Russian irons, which are largely imported for that purpose. Swedish iron, stamped with a circle enclosing the letter L, (hence called hoop L,) holds the first rank, and fetches the high price of £36 10s. per ton; while excellent English coke iron may be had for one-fifth of the price. The other Swedish irons are sold at a much lower rate, though said to be manufactured in the same way, and therefore the superiority of the Dannemora iron must be owing to some peculiarity in the ore from which it is smelted. The steel recently made in the Indian steel works at Chelsea, from Mr. Heath's Madras iron, rivals that from the hoop L."

The specimens of Andover iron, which have been presented to us in various forms, since the working of the mine has been renewed under the enterprising and skilful management of Peter Cooper, Esq., encourages us to hope that these operations may be the pioneer in the production of iron from our own mines, the superiority of

which will compel its use, although the cost may be somewhat greater than the poorer qualities of foreign iron with which our market is constantly inundated. In the construction of important machinery, and particularly ocean steamers, where every thing depends on the quality and perfection of the materials used ; where immense amounts of property, and, more than all, thousands of valuable lives, are some times made dependent on the strength of a piston-rod, cross-head, a shaft, a bolt, or a bar of iron ; it would seem to be necessary that contracts should now cease to designate that article as of two qualities only, "cast iron" and "wrought iron," and that the work should be placed under the constant hourly supervision of qualified, practical, and reliable judges of the material, so that nothing but the best should be permitted to enter into the construction, regardless of its cost.

There are several mines in our country which have been long worked, producing iron of the very best quality ; specimens of which, we regret to say, were not shown at our recent Fair, and consequently do not come under particular review.

STEEL.

This is one of the most important materials known. In prosecuting the mechanic arts, it is indispensable, for without it, advancement to any very great extent would have been impracticable. It is a combination of iron and carbon, the relative proportions of which are supposed to vary in the different qualities of steel. The quantity of carbon which unites with the iron in the process of conversion, has not with certainty been ascertained. It is estimated not to exceed in any case two per cent. Steel must have been known at a very early period ; it is mentioned in the sacred volume, II. Sam. xxii. 35 : Jeremiah xv. 12 ; and Job xx. 24. "*He shall flee from the iron weapon, and the bow of steel shall strike him through.*" Dr. F. Hoefer, in his "*History of Chemistry from the most remote times*," says, "the East Indians were for a long period renowned for the temper of their steel. The whole world was heard to speak of the excellence of it

for cutting instruments, particularly the swords called *Thaumasia Ziphes*, wonderful swords; and by the East Indians, *Damascus Blades*, made at Damascus, in Syria, before the discovery of the Cape of Good Hope. The celebrated *Wootz Steel*, which is now imitated by alloying steel with silver or platinum, was exclusively employed formerly in the preparation of watered metal. Blades of certain sorts of steel, especially the *Wootz*, after being well hammered and moistened with weak acids, exhibit a beautiful surface of interlaced veiny ramifications."

Experiments have demonstrated that steel will retain $\frac{1}{80}$ th part of silver as an alloy, and is improved thereby. It has also been alloyed with many other metals, but with no decided benefit, excepting platina.

It has been shown by M. Mushet, that the hardness of iron increases with the carbon it contains, till the carbon amounts to one sixtieth of the iron. At this point the hardness has attained a maximum, the metal acquires the lustre and color of silver, loses its granulated appearance, and assumes a crystallized form. If more than one sixtieth of carbon be added, the hardness of the compound diminishes in proportion to its quantity.

Cast steel was first made in England about the year 1750, and from that period to the present time, she has supplied a very large portion of the demand for that article, as well as other qualities of steel. England produces very little iron suitable for conversion into good qualities of steel, and has always been under the necessity of importing iron for that purpose from Sweden and Russia, at the enormous cost of from \$175 to \$190 per ton; notwithstanding this, it has been and still continues to be a very profitable pursuit.

The importation of steel, manufactured into various forms, such as edge tools, cutlery, springs, &c., into the United States, has always been large. In its unmanufactured form, the quantity imported in 1831, amounted in value to \$291,957—in 1844 it amounted to \$487,462—and in 1848 it amounted to \$1,284,937; showing a very

•

great increase here in the demand for it, and there can be no doubt of a constant augmentation of that demand.

The conversion of iron into steel in the United States has not been done until very recently, except to a limited extent. About the year 1828, Mr. Joseph Dixon commenced the manufacture of black lead pots for the use of brass founders; up to that time these articles had been imported principally from Holland. Mr. Dixon's perseverance in the manufacture of these pots has been attended with entire success. The pots of his manufacture will do from six to seven times the work of those imported, and are afforded at less than one half the price, so that now the importation has nearly ceased.

About five years since Mr. Dixon commenced experiments in using his black lead crucibles for converting iron into steel. Complete success has attended these experiments. The crucibles contain about forty pounds of iron each, and they will stand six heats; each heat occupies one and a half hours. The metal is put into the crucibles and melted with anthracite coal. From the crucibles it is run into ingots from 3 to 6 inches square, and from 18 inches to two feet long, and then drawn down by hammers worked by machinery to the required sizes. The manufactory is located at Jersey City, and under its present arrangements produces one ton of cast steel per day. By an improvement in the process, Mr. Dixon has been enabled to convert the pig metal directly into steel, avoiding the intermediate processes of puddling and drawing into bars; by which twenty-five per cent of the metal is saved, and the cost of conversion materially diminished. We understand the works have been enlarged, and will soon be in operation for the production of three tons per day. The Adirondac iron has thus far been exclusively used for this purpose.

Specimens of this steel were exhibited at our Twenty-second Annual Fair, and also specimens of cutlery made from it. It was pronounced by intelligent practical workmen who had used it, equal in all respects to the best imported cast steel. It finds a ready market at the highest price paid for English cast steel.

•

The proprietors of this work are Messrs. Archibald McIntyre, of Albany ; D. S. Gregory, of Jersey City ; Archibald Robertson, of Philadelphia ; and the heirs of D. Henderson, whose names we record with pleasure, conceiving them to be eminently entitled to honor for prosecuting this enterprise to a successful result.

Thus, under the patronage of the gentlemen above named, and the perseverance of enlightened skill, we have the assurance of being able to supply our own demands for one of the most important articles known in the arts, and the prospect that at no distant day we may supply a large portion of the demand abroad. We conceive the manufacture of this article to be placed beyond the influence of tariffs, or that vascillating legislation which has been so ruinous to almost every mechanical or manufacturing enterprise in our country.

GUTTA PERCHA.

A very large display of articles made of this material, was exhibited at our late Fair, from the American Gutta Percha Company, under the direction of Mr. S. T. Armstrong. When we consider that it is only about eight years since the properties of this singular substance began to be investigated, it is truly surprising to witness the great variety of extremely useful purposes to which it has already been applied ; some of which are of great value. Caoutchouc, or India Rubber, as it is familiarly called, has been known for centuries ; nevertheless, it is within thirty years that this gum has been applied, in any considerable extent, to purposes of utility, and even now, it is very doubtful whether all the uses to which it is applied will be very durable ; although immense skill, labor and capital have been employed upon it. There is certainly reasonable ground for a belief that, should a moiety of the skill which has been directed to India Rubber, be applied to Gutta Percha, the latter will attain a permanent standing for purposes of great utility.

The tree which produces the gum in question, grows in great luxuriance and abundance on the islands of Singapore, Borneo, and along

the Malayan coast; and it seems to have been ascertained that a supply of the material, equal to any anticipated demand, can readily be obtained. Its properties are very remarkable; the acids, fixed oils, alcohol, frost, or water at a low temperature, do not affect it; but it dissolves readily in boiling spirits of turpentine. At an ordinary temperature, it is as hard as wood. When immersed in water above 150° Fahrenheit, it becomes soft and plastic, and may be worked or pressed into any required form, which it retains without contraction in cooling, and assumes its original hardness.

We have stated that it has been applied to a great variety of uses, entirely too numerous for us to particularise; we will, however, advert to some of the most prominent. Placed in any position either above or below the surface of the ground, where the temperature does not exceed 100° Fahrenheit, it appears, as far as experience has gone, to be unchangeable. It retains water without in the slightest degree impairing its purity, and consequently forms a cheap and durable pipe for conducting water for any purpose, provided the temperature does not rise above the point before stated. The frost, which is so destructive and troublesome to conducting pipes made of the usual materials, is sustained without injury by Gutta Percha; experience having shown that it will expand without injury, sufficiently to accommodate the expansion of water in freezing. A series of experiments recently conducted at Birmingham water-works, to test the strength of Gutta Percha relative to its capability for the conveyance of water, resulted as follows: tubes three-fourths of an inch in diameter and one-fourth of an inch thick were attached to an iron main and subjected for two months to a pressure of 200 feet head of water without suffering any deterioration. The tubes were then connected with the hydraulic proving pump, the regular load of which is 250 pounds in the square inch, at which the tubes were unaffected.

In the practice of surgery, it is found to answer many very valuable purposes, particularly in the management of fractures; so much so, that it has been pronounced by gentlemen skilled in the practice, "a boon to mankind, used for that purpose only."

Another most important use to which it has been applied, is insulating telegraph wires, which it accomplishes in the most perfect manner, being sufficiently flexible for any purpose connected therewith, and it is also a perfect non-conductor. By the application of this as an insulator, the telegraph lines now find no difficulty in crossing our widest rivers and bays, where before they were cut off. The line under the Hudson river crosses at Bull's ferry, and consists of two wires of one mile in length each, with about 3000 pounds of cast iron anchors to keep them in place. There is no doubt that the unsightly poles with strings and kites flying at every few feet distance, which now disfigure the principal thoroughfares of our cities, will soon be superceded by isolated wires placed under the surface. This will be found the most perfect mode of construction, and in all probability the cheapest for cities.

Gutta Percha has been very extensively used for machine banding, both in England and the United States, and from the multitude of testimonials in its favor for this purpose, the conclusion is irresistible that it answers fully the required end, except in positions where there is necessarily much friction.

For the soles of boots and shoes it answers an excellent purpose. It is more durable than leather, and can be rapidly applied by any person ; therefore in new countries, or in places where there are no boot or shoe makers, it is a very desirable article.

We have seen a great variety of house-keeping utensils beautifully designed and made of Gutta Percha. These in a great measure will take the place of articles made of porcelain, and must effect a very great saving, particularly in our large hotels.

We understand that the French and English governments have contracted for a sea line of telegraphs across the English channel from Dover to Boulogne, which is to be completed the present year. This can only be accomplished through the agency of wires insulated with Gutta Percha.

Mr. S. T. Armstrong has submitted a proposition to Congress to construct a telegraph line from a point on the American coast to a point on the Irish or English coast, and will complete the same in the space of twenty months, at a cost of three million dollars. The line to be owned by the British and American governments. We understand the project is deemed feasible by scientific and practical men. Much credit is due to the indefatigable exertions of Mr. Armstrong, in applying Gutta Percha to many valuable purposes, which must be seen to be appreciated. A visit to the depot of the manufactory at No. 181 Broadway, will well repay the trouble. The American Institute awarded to Mr. A. a gold medal in 1848; and another in 1849 for further improvements.

SHAWLS.

The display of shawls at the twenty-second Fair, greatly surpassed any former exhibition. Those from the Bay State Co., Lawrence, Mass., took the highest award. We trust it will not be deemed out of place here to state, that this company now employ, in that portion of the works in operation, one thousand hands, and consume over one million pounds of wool per annum. The shawls on exhibition are made entirely from American wool. The daily product is about one thousand long shawls, and only one-third of the mill is yet filled with machinery; the remainder is gradually filling up. It is only a year since the commencement of this manufacture, and already they have obtained a favorable reputation in the principal cities of the Union. It is gratifying to know that thus far, in the use of these shawls, the style, color, and weight, have proved satisfactory to the consumers; and we are assured by competent judges that in all respects they compare well with the best styles from Europe. We cannot but look upon a maid or matron, clad in one of these beautiful and comfortable garments, with as much respect and admiration as if clad in the very costly, but less comfortable fabrics of India.

It is highly complimentary, and must be gratifying to the proprietors of the Bay State Company, to be informed that the attention of our

committee of judges on fine arts was attracted by these shawls, of which they thus voluntarily express an opinion in their return, viz: "We would say that if the designs in color of (shawls) No. 1348, are of home invention, and not borrowed from French or other European sources, that they are in the highest degree worthy of being judged under the head of Fine Arts, and of being valued the FIRST of their kind."

Shawls from the manufactory of D. Kellog, Skaneateles, N. Y., took the second premium. Mr. Kellogg exhibited some shawls from his manufactory, which were of very superior quality in fineness of wool and texture, they came in too late for competition, according to the rules of the Fair.

The Terkeri shawls, from the manufactory of Monoch and Barwey, Lexington, were deemed superior in regard to the printing.

SILK.

The culture of silk languishes in the United States, under the operation of laws which might just as well have been formed to encourage and protect it, without the slightest probability of encroaching thereby upon the rights, privileges, or interests of any class of our own people. The attention which is now paid to its culture would not have remained, but for a small bounty continued by one of the States, and the kindness of our fellow citizen, the Hon. Myndert Van Schaick. The specimens exhibited at our twenty-second Annual Fair were not numerous, but the qualities were of the most superior kind. Specimens of Mr. John M. Summy's crop, from Manheim, Pa., which this year amounts to about 200 lbs. of reeled silk, were deemed better in quality than any which have been shown for several years; our judges in their report say, that "imported raw silk, it is calculated, loses on an average 25 per cent in the spooling, but they feel confident these specimens of Mr. Summy would not lose more than 3 or 4 per cent, at the utmost.

Of manufactured silk the specimens were not large, but some of very superior quality. In sewings, the specimens were large and very excellent. In the town of Mansfield, Conn., the quantity of silk manufactured into sewings is about 500 lbs. per week. The quantity grown in that neighborhood has been reduced, under the operation of the present tariff, to a very small amount; the whole not exceeding 100 lbs. per annum. Manufacturers concur in the opinion that American silk, for strength of fibre and lustre, stands unrivalled. The specimens of silk dyeing were extremely beautiful.

CHANDELIERS, LAMPS, AND GAS FIXTURES.

The exhibition in this department at our last Fair, was very full, and the specimens of excellent workmanship. There have been complaints previously made, and the same are repeated this year by the judges, that there is a lack of originality in the designs; the specimens being generally copied from French or English patterns. It is certainly much to be regretted that our artisans have not been induced to turn their attention more particularly to this important part of their profession. We are not by any means inclined to adopt a belief that the artisans of our country are inferior in talent or taste, to those of any other country. The misfortune has been, that for a succession of periods, from an early date in the history of artisan labor in the United States, just at the time when that labor began to be productive, and the dependent artist began to look up for superiority and originality in the products of his toil, our laws have undergone changes which have blighted his prospects, his hopes, and his aspirations for fame. Let there be some stability in the laws which control the prospects and fortunes of the laboring mass, and there can not be a doubt but that complaints, such as are above alluded to, will soon cease to be heard. There is not a school of design in our country calculated for the class to which we now refer, and there never will be, until our legislators view in its proper light, the importance and great necessity of rendering stable those laws which control the remuneration and prosperity due to productive labor, instead of considering the interest of factors and agents as of paramount importance.

MADDER.

Mr. H. Gilyam, formerly of Holland, exhibited specimens of Mad-dër grown at Flatbush, Long Island, where he now resides. We are not judges of the article, but those who are, spoke in good terms of the specimens shown. Mr. Gilyam informs us that since his residence in the United States, he has taken great pains to ascertain the most suitable locations for its cultivation, in reference to soil, climate, &c. The examination has convinced him that from Norfolk, Va., to Wilmington, N. C., and from the sea board twenty-five miles to the interior, the soil and climate are better adapted for madder culture than any other section of the United States. Mr. G. is undoubtedly well acquainted with its cultivation, having pursued it in Holland for many years.

This plant is a native of the South of Europe, Asia Minor, and India. It is extensively used in dyeing red, and if properly prepared produces that color in great beauty. It is also used in producing blue, black, buff, olive-brown, olive, navy blue, and other colors. It is extensively cultivated in Holland, Alsace, Provence, &c. A rich soil is necessary for its growth, and when the soil is impregnated with alkaline matter, the root acquires a red color; in other cases it is yellow. In France, the red sells for 40 cents per 100 lbs. higher than the yellow, where it is extensively used for the Turkey red dye.

Few American gentlemen, whilst traveling abroad, have devoted more of their time and attention to the interests of their countrymen than Gen. James Tallmadge, from whom, under date of December 25, 1836, we find the following letter on the subject of madder, addressed to Jesse Buel, Esq.:

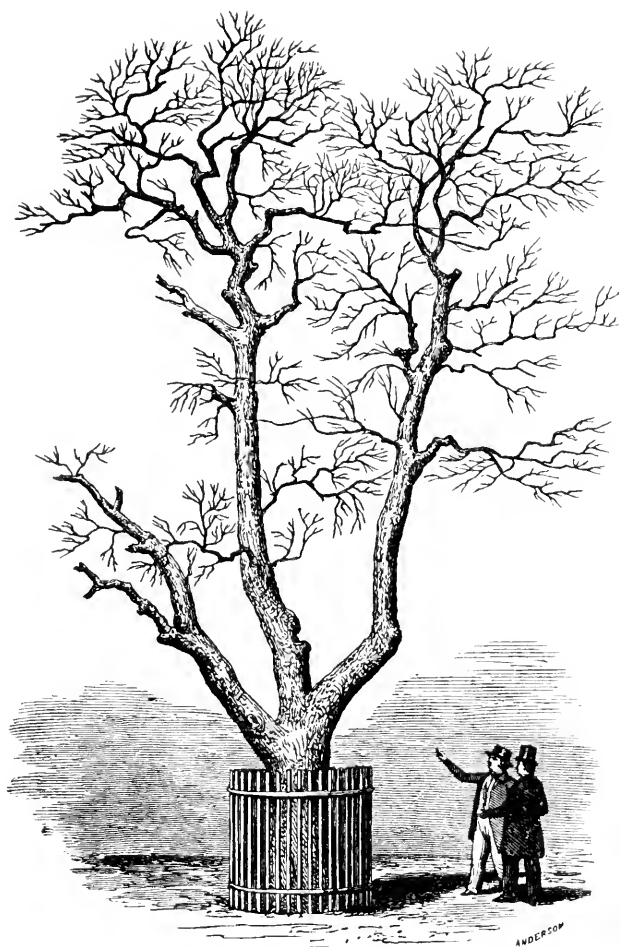
“ Dear Sir—Your known zeal in augmenting the productions of our country, and your efforts to make an additional blade sprout where it was before barren, gives assurance that a package of foreign seeds could not be placed in better hands, than when confided to your care. I have a package of *Madder* seed, which I brought from Avignon, on the Rhone. It is but a few years since France purchased from Holland,

the madder used in the dyes. Her production of madder now supplies her own demands, and furnishes a new agricultural product for extensive exportation. France, I believe, supplies our country with madder. Its growth is suited to our climate, and to the rich lands on our rivers. The attention of our farmers should be turned to this as a new and very profitable crop. A few years of peace in Europe, and the agricultural and mechanical laborers of its subjects will surcharge our markets with their productions. It is a *DUTY to supply, from among ourselves, our own wants.* We have every variety of soil and climate."

Attempts were made as early as 1836, to introduce its culture in the United States, but with what success, we are uninformed. The cost of importations about that period, exceeded \$2,000,000 per annum. Some account of its cultivation here may be found in the *Farmers' Cabinet*, 1836, vol. 1, p. 280.

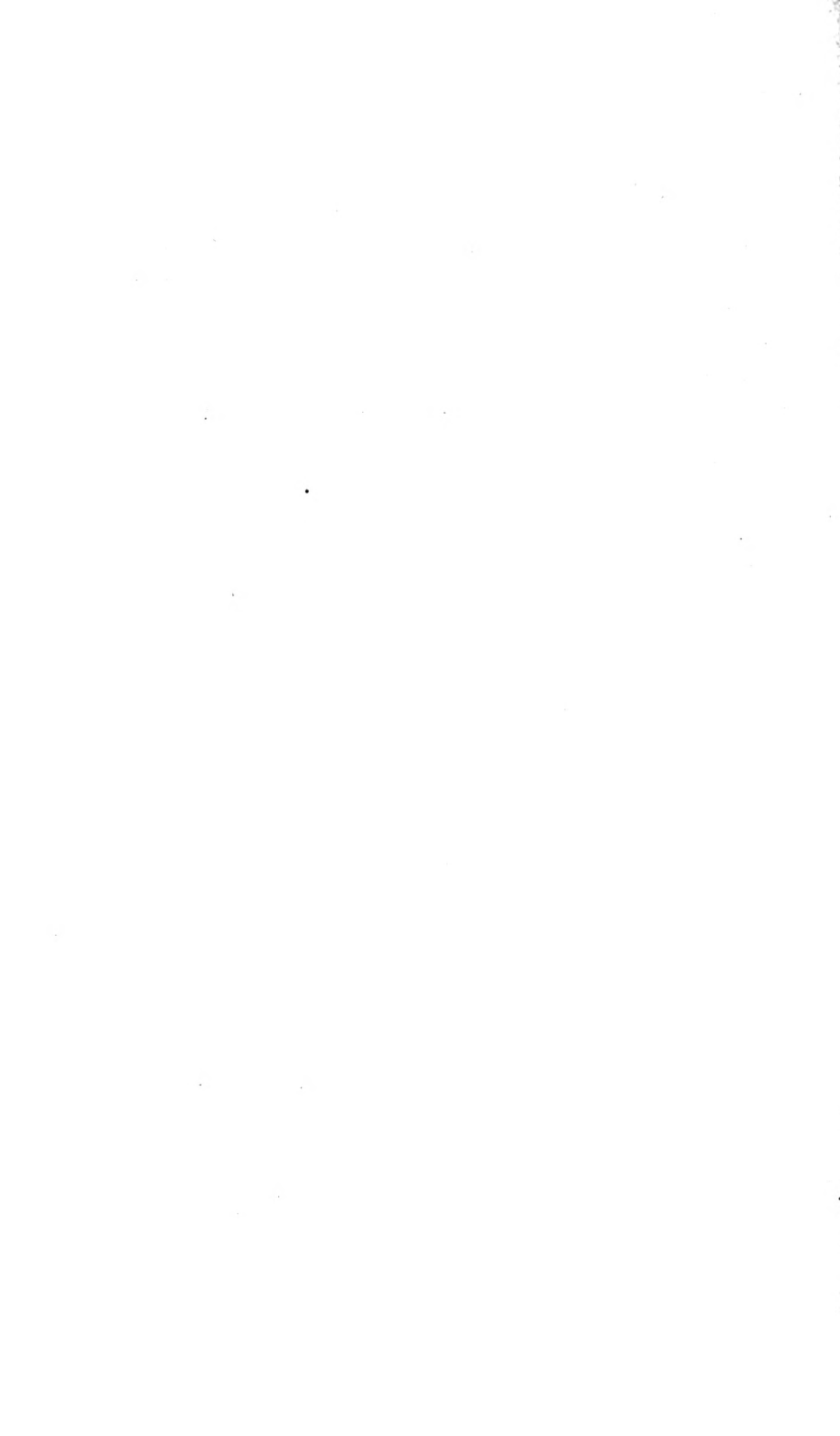
STUYVESANT PEAR TREE.

This venerable tree, of which we procured the annexed drawing in January last, stands on the corner of Third Avenue and Thirteenth-street, in the city of New-York. It was planted about the year 1646, by Peter Stuyvesant, at that time Governor of New Netherlands, and has existed in a remarkably thrifty condition over 200 years. In regard to the quality of its fruit we have no information, but understand that it bears annually. Its trunk and large branches present evident marks of the effect of time; its height is about 40 feet, and its trunk about 100 inches in girth. It is one of the living remembrancers of the attention bestowed by our forefathers on pomology, and deserves to be cherished with care. We are indebted to "*Browne's Trees of America*" for the facts above stated.



THE "STUYVESANT" PEAR TREE,

Corner of 3d Avenue and 13th street, City of New-York.



EDGE'S INSTANTANEOUS ILLUMINATOR.

Mr. Isaac Edge, of Jersey City, pyrotechnist, exhibited at the late Fair his newly invented Illuminator. This is an instrument composed of combustible materials, and so encased that it may be carried in the pocket with perfect safety. Its utility consists in the ability afforded to its possessor of producing, in the darkest night regardless of the state of the weather, an instantaneous and brilliant illumination of the whole vicinity. Experiments were repeatedly made by Mr. Edge during the Fair, and each instance with entire success; indeed, such is the construction of the article and composition of material, that a failure would seem to be impossible.

The uses to which it may be applied are manifold, and of great importance, viz :—on the beach in case of a wreck—as signal lights on board of ships—in the hands of our night police in cities in cases of riot or other difficulties—in railroad trains in case of accidents at night—on board steamers and other vessels navigating our rivers in case of accidents at night—in short, in the possession of all persons wherever there is a probability of requiring a powerful and instantaneous light. The simplicity in the use of this article, and its entire safety, as well as length of time, which it may be kept, renders it in our opinion an article of importance, for which Mr. Edge deserves the thanks of his fellow citizens. A patent has been applied for.

IMPROVED COP SPINNING AND WINDING MACHINE.

This is an invention of Mr. George H. Dodge, of Dodgeville, Mass.,^m who claims that it is a combination of the self-acting mule and throstle; that it has many advantages over the common method of spinning, and is equally applicable for filling and warp yarn. In the room usually occupied for 1000 mule spindles, 1500 may be placed, which will do the work of 3000 spindles. That it occupies the usual space required for warp spinning, but will spin 50 per cent more yarn

to the spindle than the best ring bobbin known to him in use, and with a saving of two-fifths of the power. That it will spin 100 per cent more yarn than the flyer spindle, with one-half the power compared to the quantity in use, being tapered to the top, and there being no bobbins or check pins used, it maintains its balance at any speed required. It is not liable to get out of order, and is much more convenient to piece up the ends when broken, than the bobbin frame. The Messrs. Dodges represent their entire mill as having been changed from the old or common plan to the above method of spinning, and from twenty-nine years practical experience with other spinning, believe it to be the best kind of spinning in use. That they are daily producing more yarn from 2,320 spindles than they were ever able to do from about 4,600 on the old plan commonly used. That they are prepared to demonstrate the facts above stated, and many other advantages in this method of spinning over all others in use, and ask the privilege to do so. They have exhibited a comparative statement of production to us for nineteen successive weeks of their mill from January to May, 1849, compared with the old plan for the same period of time in 1847, 1848. Also a comparative statement of the cost of production for the said period, which results in a saving or gain in favor of the Cop spinner of 42 per cent. That it costs one cent per spindle for tending warp frames, and one and one-eighth cents for filling frames, and twelve dollars extra for doffers per week.

Such are the claims of the inventor. This machine was in operation during our twenty-second Annual Fair, and sustained itself well in the estimation of those competent to judge the merits of this kind of machinery. It was a full size frame, exhibited to the committee in full operation, spinning warp yarn on one side, and filling on the other, No. 31, and running at a speed of 124 revolutions of the front roll. In a word, the frame performed well, made good yarn, wound a good cop, and worked with perfect precision, and in the opinion of the committee justified the expectation of the inventor; that at no distant day the attention of the manufacturing community would be turned to it. The committee of judges to whom it was referred, returned the following report:

"This machine dispenses with the bobbin and admits of an increased action of the spindle. We consider it an improvement of the first magnitude, and entitled to the highest honors of the Institute."

DICK'S ANTI-FRICTION POWER.

The right was secured to the inventor, Mr. Daniel Dick, of Meadville, Pa., by letters patent issued in October, 1848. As a machine for purposes of pressing or lifting, it may with propriety be denominated a *great power*, as we know of no combination previously invented that equals it; the hydrostatic press of Brahma not excepted. It is a combination of great simplicity, giving a movement attended with probably the greatest power attainable, without the use of steam. It has no rubbing surfaces, and consequently friction is overcome, which, if we except the hydrostatic, has always been the great obstacle in the use of all other machines, where intense power has been aimed at. Dick's arrangement may properly be termed the rolling cam.

In its most extended form, it consists of two eccentric or cam wheels, with a roller situated between them. Motion is communicated to the cam wheels by the roller, which is put in motion by a lever or wheel attached to its axis, the friction being relieved by a pair of sectors supporting the axis of each cam wheel, which sectors revolve on an edge. A second modification, which adapts it to purposes not requiring much movement, consists simply of two eccentric or cam sectors, with a roller between, put in motion by a lever or wheel as before; the moving members of both being preserved in their vertical position by slots or guides in the frame.

Up to this time, the hydrostatic press, which was patented in England about the year 1796, has held an unrivalled sway in this department of mechanics, for all purposes, either for pressing or lifting, where intense force was necessary to be used; and this not because of the absence of friction, but because of the change of the nature of it,

converting it from a variable, as it exists in other machines, to a constant quantity of resistance, or nearly so, under all intensities.

The power invented by Dick is without friction of any sort, as constituting an impediment to its action, worth noticing; and we know of no reason why it may not supercede, for the great majority of purposes, the hydrostatic and all other forms of power, either for pressing or lifting, especially when we take into consideration the facts that it can be afforded at a much less cost; will operate much quicker with the same force exerted upon it; is more convenient to handle; easy of construction; requires no oil to lubricate its parts; no water, as in the case of the hydrostatic; and is far less liable to get out of order, than any other form of machine.

We cannot but view this invention as of the greatest importance to this department of mechanics, and we are not a little surprised that the principle or manner in which this mechanical arrangement has been constructed, should have so long escaped notice in this age of invention, which has brought forth so many wonderful things in every department of science and mechanism.

It may be serviceable here to enumerate some of the purposes to which this power can be successfully and economically applied, viz: pressing oils, paper, books, cotton, hemp, cloth, flax, tobacco, hay, baling goods, &c.; elevating ships in dock, hauling out vessels on inclined planes, moving houses, extracting stumps, punching iron and other metallic plates, of all the usual thicknesses, cutting off iron bars, shearing boiler plates, printing, coining, embossing, planishing tin and daguerreotype plates, cutting out and pressing jeweller's work, &c. It has been very successfully applied to straighten railroad bars, as shown by the annexed letter from Messrs. Cooper & Hewitt.

The most extensive and severe test of its power for lifting purposes, was recently made at the Navy Yard, Brooklyn, where one of these machines, about seven feet in height, was applied in extracting the piles that had been driven in constructing the coffer dam required for the Dry Dock. These piles had been driven into the ground about 40 feet, were about 50 feet in length, and 16 to 20

inches square, dowelled together and spiked, and some of them were secured to the adjoining piles by heavy iron bolts, $2\frac{1}{4}$ inches diameter, and pressed together by tapering piles, in the form of wedges driven in between at certain intervals for the purpose of making water-tight joints. The machine was applied, and after sundering a few times the heavy iron grapplings by which it was made fast, complete success attended the operation; the power of the machine, completely overcoming the adhesion of the moist ground, tearing the piles loose from the joinings by the dowelling and spikes, and breaking in twain the heavy iron bolts; exerting a lifting power of over *three hundred tons*, with an applied force of from four to six hands!! The following letter in regard to the merit of Mr. Dick's invention, is from a very reliable source, and will be read with interest:

NEW-YORK, *November 10, 1840.*

JOSEPH E. HOLMES,

Agent for Dick's Anti-Friction Press.

Dear Sir—Your favor of the 23d ult. is received. Your Press is now in daily use at the Trenton Iron Works, straightening railroad iron, and it works to our entire satisfaction. In fact, we are most agreeably disappointed in regard to its operation, for in consequence of the peculiarly stiff form of the rail we are making, we feared that a machine of adequate power could not be obtained. The rail is $7\frac{1}{8}$ inches high, with a flange $4\frac{1}{2}$ inches wide, and weighs 93 lbs. per lineal yard. The ordinary mode of straightening rails by the sledge is entirely unavailable on the bar. And yet the machine does the work with the utmost ease, and with so much expedition, and so little derangement of the fibres of the iron, that we should never think of using the sledge again.

Some idea of the stiffness of the rail may be formed, from the following experiments tried by the Camden and Amboy Railroad Company.

The rail was placed on bearings $67\frac{1}{2}$ inches apart in the clear; a weight of 24,000 lbs. was then placed in the centre between the bearings, and the deflection of the bar was $\frac{1}{16}$ of an inch. A second experiment with another bar, under precisely similar circum-

stances, gave a deflection of $\frac{1}{1000}$ of an inch, and a permanent set of $\frac{1}{1000}$ of an inch. The bearings in your machine are only about twenty-eight inches apart, so that the power required to make the deflection is very much increased, and yet the machine does not seem to feel the work.

We have no hesitation in recommending the machine in the highest terms, for straightening rails, and for all purposes where great pressure is required. Its simplicity and comparative cheapness must certainly bring it into very extensive use, and for an immense variety of applications.

With our best wishes for your success, we are,

Very respectfully,

Your ob't servants,

COOPER & HEWITT.

EQUATORIAL TELESCOPE,

Made by Henry Fitz, New-York.

Telescopes date no farther back than about the commencement of the 17th century. With the aid of a telescope of rude and imperfect construction, Galileo observed the satellites of Jupiter about the year 1610. Telescopes are of two kinds, refracting and reflecting. Refracting telescopes were constructed first, but the compound nature of light presented difficulties, which for a time were regarded as insurmountable. Reflecting telescopes therefore were for a long time used, during which they attained a degree of perfection. The difficulties attending the construction of the refracting telescope, were at length overcome through the persevering efforts of John Dolland of London, who produced an achromatic refracting telescope about the year 1757. The discoveries of Fraunhofer have contributed to the improvement of telescopes. At the present time they are extensively made in London by the descendants of Mr. Dolland and others. We are credibly informed that they rely for their glasses principally on the manufacturers on the continent, Merz, the successor of Fraunhofer, and one or two besides.

An emergency of recent occurrence, brought Mr. Fitz conspicuously before the public as a manufacturer of achromatic telescopes. A series of astronomical observations in the southern hemisphere, were about to be made by direction of Congress. Those in charge of the expedition having received information from the successor of Fraunhofer, that it was impossible to make a nine feet equatorial in the time specified, Mr. Fitz volunteered to make an object glass from Guinand's discs, of the same dimensions as that at the High School Observatory at Philadelphia, viz: $6\frac{1}{4}$ inches clear aperture, and 6 feet focal length, which should be compared with that instrument, and if it proved equal to it, he would charge for it only the cost of a similar lens at Munich, (about \$500,) otherwise the Smithsonian Institute, which had consented to the loan of their instrument for the use of the expedition, should have the use of it free of charge until another could be obtained from Germany. Mr. W. J. Young, of Philadelphia, guaranteed to furnish the mountings in the required time, and the glass was made. Professor Kendall, director of the High School Observatory, after trying it by the test proposed, gave the following decision :

PHILADELPHIA, *May 1st*, 1849.

My Dear Sir—I had the pleasure to make a trial of the Fitz object glass last evening, and was highly gratified with the result. It was compared with ours (of the same size) upon the Moon, Jupiter, several double stars, and the bright star Vega, with its companion, using a variety of powers.

It is my opinion Mr. Fitz has fully accomplished all he undertook to perform. From this trial I am unable to pronounce which is the better glass—the Fraunhofer doing nothing which was not equally done by the Fitz glass.

There was one point only about which a doubt arose, viz: color. On first looking at Jupiter, I thought there was too much violet about the edge; but on applying the other (Fraunhofer) object glass with the same eye-piece, I could not discover any improvement, except that which might justly be attributed to the improved state of the atmosphere.

Mr. Fitz, Mr. Fisher Langstreth, and Mr. Young, with one or two other competent persons, had also made a comparison of the two glasses on the 28th, and perfectly coincide with me in what I have said. I called to see Mr. Langstreth and one of the other gentlemen this morning, and found they each had arrived at the same conclusion as myself as regards the merits of Mr. Fitz; indeed, we are delighted with his success, and I am fully persuaded that between this and one you order from Merz, the chances would be decidedly in favor of the former.

Very truly yours,
E. OTIS KENDALL.

In addition to this testimonial of the merit and success of Mr. Fitz, we are permitted to insert the following extract from a letter written by the Rev. James Curley, Professor of Astronomy at Georgetown College, dated Nov. 7, 1849, addressed to Mr. Fitz:

“It is highly pleasing to hear of the extraordinary result of your efforts in working achromatic glasses. I am much pleased that you get enough to do, and I only regret now that it was not our lot to have an instrument made by you instead of our equatorial made by Simms of London. It cost me about \$1500. I do not see much advantage in the size of the circle over yours, but I see a great advantage in the glass of your last instrument being eight-tenths of an inch larger than ours.”

Much credit is due to Lieut. Gibbs, in charge of the expedition above alluded to, for the part he took in bringing forward the ability of Mr. Fitz, who is a native of New-York, and self-taught in the art he has so successfully managed.

The equatorial telescope exhibited at our twenty-second Annual Fair, was made to order for Erskine College, Due West Corner, Abbeville district, S. C. The object glass is 5.6 inches aperture, 7 feet focal length. It has 8 eye pieces, magnifying from 84 to 500 times; an achromatic finder 2 feet focus; an hour circle $7\frac{1}{2}$ inches diameter, and a declination circle $9\frac{1}{2}$ inches diameter. It is furnished with a position and distance micrometer, and a clock for moving the tele-

scope corresponding with solar, lunar, and sidereal time, by which the object is kept accurately within the field of view.

Such are the facts connected with the manufacture of telescopes in the United States, and they leave very little room to doubt their equality in all respects with the best productions of Europe. It may not be amiss to state that Mr. Fitz is entirely self-taught in this art, having learned the business of a locksmith, which he pursued for ten years. His first telescope was made for his own use and amusement. He now devotes himself exclusively to this business, and offers to construct telescopes of any size, under a guarantee that they shall be equal to any that can be produced.

LONG ISLAND.

TO GEN. A. CHANDLER.

Dear Sir—It may not be uninteresting to you and to the members of the Farmers' Club, and of the American Institute, to know what has been done, if any thing, in the way of cultivating and improving the wild lands through the middle parts of the island, along the borders of the railroad, since the agricultural excursions made by the members of the Institute in 1847. A reference to the account of those visits to the wild regions of Long Island, and of the Agricultural Convention held at Greenport, as given in the Trans. of the American Institute for 1847, will show the opinions then expressed by the Convention, of the practicability of rendering those lands productive; and now a brief statement of facts or results will enable those gentlemen, as well as others, to see how far they are sustained in the judgment formed at that time, and the favorable opinions given, of cultivating that large portion (theretofore considered as barren) of the island, between Farmingdale and Riverhead, a distance of more than forty miles.

A popular belief long entertained by the inhabitants of the island, that those lands were unsuceptible of cultivation, had prevented any attempt, except what little had been done by myself and one or

two others, to cultivate or improve them. The railroad had done comparatively nothing more than to plough its own great furrow through these great forests, where the wild deer yet roamed as in the days of the "Red man," the native lord of the isle; the station houses along the line of the road, being at that time surrounded by bushes and wild grass to their very doors.

The publicity given to those excursions, and to the opinions expressed by the members of the Institute, and by those gentlemen who were present as invited guests, attracted very great attention; they were everywhere read and freely commented upon throughout the island. The whole subject of these plain lands, as they were commonly called by the island people, was presented in a new light, and many men who had considered it impossible for any thing to grow there but the trees, shrubs and grasses, through which they had been accustomed to pursue the deer and the wild bird, began to think there might be some mistake; as they had never made any trial of the qualities of the soil, they knew of no one who had ever tried to cultivate any portion of that great tract of island land, it was all a matter of opinion, and these lands may yet be capable of producing something, or so said many. The consequence of this was, that attempts were made in several places along the line of the railroad to cultivate what had been always before considered as "barrens," and the results have been in every case, highly successful and satisfactory.

Last season two and a half tons of English hay per acre, were taken, by ordinary cultivation, from land that had been reclaimed from these wilds at Thomson Station, about forty miles from Brooklyn, and where a recent historian of Long Island (see Prince's Hist. pages 17 and 19) described the soil and surface of the country as being entirely barren, and the sand approaching to fluidity. Here, as fine crops of wheat, rye, corn, potatoes, and garden vegetables, were raised last season, as on any other part of the island.

At Yaphank, sixty miles from the west end of the island, where a halt was made at the time of the excursions in 1847, and where there was no land cleared at that time, last summer there were crops of wheat, rye, corn, clover, and timothy, with garden and fruit trees as

thrifty as could be found in any part of the county of Suffolk. The sum of one hundred dollars per acre has been offered for land at this place, that was purchased four or five years since for \$4.75 per acre ; and \$25 per acre for that which is yet uncultivated.

These facts are mentioned to show the changes that have taken place, in the estimation and value of these lands, as there is no longer any doubt as to their productive qualities.

Samuel Carman, Esq., of Fire Place, a gentleman well known on the island, and to great numbers of those who resort to the famous trout stream at Fire Place, says that he is fully satisfied that the land in the middle parts of the island, along the borders of the railroad, will produce more, acre for acre, with the same cultivation, than the land on the south shores of the island where he resides, and which in the opinion of the island people was so much better than that *inland*.

At Lake Road, or Irvington, cultivation has been equally successful. This is a new settlement in the midst of the great wilds, and near the celebrated Ronkonkama pond or lake, one of the most beautiful sheets of water on the island, or in the State of New-York. It is situated about a mile to the north of the railroad, and surrounded by high and undulating ground, its waters are remarkable for purity and great depth, being about eighty feet deep in the middle. The lake is about three miles in circuit, and is the admiration of all who visit it. At Irvington, large and commodious buildings have been erected, and the land here has been broken up with the plow. One of the great difficulties of bringing these lands under cultivation, in the estimation of the island people, was the work of clearing the ground of roots, it being regarded as impracticable to plow up the land until it had been *grubbed* out by hand, at a cost of \$16 per acre ! this being the long established price paid for *grubbing*, whenever it was necessary to clear up a little of this kind of land for roads, or any other purpose. This great tax, or first outlay, formed an almost insuperable objection or barrier, to any and every attempt to break this great wilderness, and particularly when added to the notions of worthless and barren land, that nothing would grow on it after it was cleared. I plowed the ground without the previous *grub-*

bing, with one of Ruggle's Nourse and Mason's large Eagle plows, and with two yoke of oxen ; the work was complete, even better than I expected or claimed, and has triumphantly established the important fact that these lands can be plowed up at a cost of three or four dollars per acre, instead of sixteen dollars per acre !

Strange as it may appear to northern and eastern farmers, to men accustomed to clear new lands, it was here regarded as impossible to plow these lands until the roots of the small oaks and whortleberry bushes had been taken out with a hoe ! And when I advanced the opinion that it was an easy matter to plow them out, such opinion was received by the inhabitants of the Island, with nothing but derision, as a fallacy undeserving any serious notice ; it was even more absurd than the idea that the land might possibly be good for something after it was cleared.

These scrub oaks that have obtained such a hard name, and have given to the land on which they grow such "bad eminence," are, as you know, a distinct species of the oak, a dwarf tree, *Quercus banisteri*, or bear-oak, and never grow any larger, whatever be the qualities of the soil ; no matter how rich, no more than a currant bush or a lilac ; it is a sort of miniature tree ; small oaks "from little acorns grow," as well as large ones.

These little oaks are vigorous, tenacious of life, and very prolific, yielding an abundance of acorns. Whether these are the oaks producing the "great store of mast for swine," found on the island, as mentioned by Denton in his history of the New Netherland in 1670, I will not pretend to say. I have never seen any estimate of the quantity per acre of these acorns produced by this little oak ; it must be very large, a great many bushels. It is called bear-oak, from the fact of the bear feeding on its acorns. Quail, partridge, and many other birds feed on these, and also deer ; so it is not after all, so despicable and useless a little fellow.

This brief notice of the parts above ground, being commonly from four to seven feet high, will aid in forming some idea of the roots, that have held dominion of so great a portion of Long Island. The

stumps of these little trees are in the crown some two or three inches in diameter, and immediately below the crown, or near the surface of the ground, two or three lateral roots spread out and extend very near the top of the ground. These lateral roots or branches, six or eight inches from the stump, when they are commonly cut off by the hoe in grubbing, are not more than an inch and a half, seldom two inches thick, and these, with the perpendicular or top root of about the same size, are the principal roots or obstruction to the plough; the fine fibrous branches and spongioles are very numerous, the ground, when they are really in possession, being literally filled with small roots for about eight inches deep, but which, with the exception of a few of the larger ones, are all soft and spongy.

The process of removing these by hand, by *grubbing*, is as follows; the tops of the little trees having been cut off and removed from the ground, the tedious and toilsome work of grubbing begins: It is performed with a mattock, or hoe with a blade 10 or 12 inches long, by 5 or 6 inches wide, and armed with this instrument the laborer steps up to the formidable scrub oak, and begins by cutting off the large lateral roots about 6 or 8 inches from the crown or stump, which is usually done by three or four heavy blows, and at each blow an effort is made to pry up or elevate the stump. After having gone around it in this manner, a heavy blow is then given to reach the main perpendicular or tap root below, and separate that, which, when done, the stump is taken by the hand, turned wholly out of the ground and thrown behind the operator. In this manner the whole surface is gone over, taking up all these little stumps and roots singly by the hand, and at a cost of \$16 per acre for the labor of doing it. After this operation the land must be plowed, which can then be done with a common plow, such as Minor and Horton's, with a pair of horses; the stumps of any trees which may have been on the ground of any size, are not removed, but are suffered to remain, the same as if no grubbing had been performed. The small stumps and roots after grubbing, are gathered up and carried off from the ground and commonly used for fuel, the more solid parts making an excellent fire.

The quantity of these roots thus taken out of the ground is very great; a man who has cleared several acres recently by grubbing,

says he takes out forty or fifty loads per acre; of this large amount of roots, not all are sufficiently solid for fuel, yet the entire mass is vegetable matter, the woody product of the soil, and instead of being taken out should by all means be suffered to remain and decay in the ground to form *humus*, a most important portion of productive soils, so that besides the great labor and cost of this miserable grubbing process, it is the very worst thing that can be done for the land; nothing can be done to impoverish more.

By the operation of the plow, these roots are nearly all left in the ground, (except the very largest,) and having been cut by the coulter and the share, are turned under the furrow, when all the softer and spongy parts soon decay, thereby adding to the soil a valuable property. Forty or fifty loads of vegetable matter per acre will of itself make fertile land, and to abstract that quantity will greatly injure almost any land.

I have given this particular account, so that persons in other parts of the country may form some opinion of the mode of cleaning these lands as practiced by the island people. This slow and laborious process of grubbing out these little roots, rendered the work of clearing this land truly formidable. Indeed, so great was the labor considered that there were but few men laborers who would undertake to perform it. This will appear almost incredible to northern or New England farmers, particularly when it is stated, the land on which this work was bestowed is as nearly a perfect sandy loam as it can be, and of the very best and finest kind, in depth from 18 inches to three and five feet, and generally entirely free from stone and gravel. Fields of 10, 50 or 100 acres can be made in which there is scarcely a stone of sufficient size to obstruct the spade, or garden rake, consequently there are no obstructions, no large or fast stones in the ground for the roots of trees and shrubs to entwine themselves among and around, and nothing to prevent their being plowed out. Yet notwithstanding this smooth and beautiful surface, and genial soil, no one believed that it was possible to break up this land with a plow until the roots had been dug out by hand.

I have not seen or heard even by tradition, of the mode of clearing land, as practiced by the early settlers of Long Island, and so much time has elapsed since the settlements and clearings were made, that all knowledge of the early modes of clearing is lost, it being more than 200 years since most of the settlements were made, and no alterations or changes of any importance have taken place in the old land marks; for there is probably very little more land cleared and cultivated now in Suffolk county than there was at the time of the Revolution. If this be so, it is certainly a most extraordinary fact; it may not be so, yet I have made inquiry of several aged and respectable men in the country, as to the fact in their respective neighborhoods, and the result has been to sustain this opinion, for the remarkable circumstance was there presented of a tract of land of more than 300,000 acres, surrounded on all sides, by old settled villages, and many highly cultivated farms, which have been occupied by many families of wealth and intelligence for five or six generations, and having remained entirely unbroken by the hand of cultivation, and as wild as it was when the Indians roamed over it in chase of game, or in pursuit of their foes, and almost within sight of the City Hall of New-York. No part of this great forest is more than 6 or 8 miles from sloop-landing and navigable waters, where various craft plied between the island and the markets of the city of New-York for eight months in the year; and that such an extent of the island's surface should thus have remained so long, when it possessed all the attributes, all the elements of soil, all the conditions requisite for cultivation, settlement, and for the habitations of men, that any other part of the island possesses, will, I doubt not, appear to many others as it did to me, perfectly inexplicable. Yet such was the fact, and so firmly had the belief become fixed in the public mind of the utter worthlessness of these lands for agricultural or horticultural purposes, that their barrenness had become a proverb, and any one who advanced an opinion that there might be a mistake in all this, that it was really soil, earth, ground : real *terra firma*, such as would produce, if cultivated, was looked upon as a mad-man or a fool !

In conclusion, I desire to say, that I feel under great obligation to you and to the members of the American Institute, for the kind manner in which you received and have encouraged my humble efforts in

breaking into that great wilderness, for without your aid and co-operation, the task would have been almost, if not quite, beyond my power.

With high regard,

I am, &c., yours,

E. F. PECK.

Brooklyn, February 9, 1850.

In corroboration of the preceding, I beg to add the following letter from Samuel A. Smith, Esq., of Smithtown, a gentleman well known on the island, and late clerk of the county of Suffolk. Mr. Smith is not an owner of any of the lands referred to, nor in any way interested therein :

SMITHTOWN, Jan. 29, 1850.

To Dr. E. F. PECK :

Dear Sir—Yours of the 24th inst. was duly received, and I cheerfully comply with your request, that I should give you my opinion in relation to certain matters therein stated.

I have no hesitation in stating, that it is my opinion that the attention which has lately been given to subduing and cultivating the "plains" or "barrens," so called, on Long Island, is principally owing to your influence, and that you was the first to propose, and in the face of powerful opposition, to contend that these lands were susceptible of successful cultivation.

Your opinion with regard to the mode of clearing them, were different from those generally entertained by the inhabitants of the island. It had been thought impracticable to break up scrub oak land with the plow, previous to being grubbed by hand, but you contended that they could be cleared by the plow, without the grubbing by hand, and subsequent experience verified your theory.

These lands have, within the last few years, been very much enhanced in price, and I am of opinion that this result has been produced in a great measure by your efforts in clearing away long existing prejudices against these lands, and by showing the people of the island, as well practically as theoretically, that they were in error.

These lands have doubled, trebled, and even quadrupled in value, within the last three or four years.

Very respectfully yours,

SAMUEL A. SMITH.

PROCEEDINGS
OF THE
SECOND CONGRESS OF FRUIT GROWERS,
CONVENED UNDER THE AUSPICES OF THE
AMERICAN INSTITUTE,
IN THE CITY OF NEW YORK, 1849.

* **FIRST DAY.**—*Tuesday, October 2, 1849. Morning Session.*

The Congress was called to order at 11 o'clock, by the Hon. MARSHALL P. WILDER, of Massachusetts, the President, who took the chair. MESSRS. S. B. PARSONS, of Flushing, P. BARRY, of Rochester, and GEORGE DEACON, of Burlington, N. J., Secretaries, appeared in their places.

The CHAIR called upon such of the Vice Presidents as were present to take seats upon the platform, and then observed, that he believed there were several Presidents and Vice Presidents of Horticultural Societies, in attendance, other than the Vice Presidents of this Congress. It was moved and voted that they likewise be invited to assume seats upon the stand.

The PRESIDENT then said he was happy to meet, this morning, so many delegates in attendance, with whom he had the pleasure of shaking hands last year, and he was very happy also to meet the new delegates—gentlemen who had come up from various quarters, some of them from the far West, to aid in the deliberations of the Congress, and assist, by their knowledge and experience, in the efforts to promote the spread of Pomological Science in the country. The field was a wide one, and no doubt it would be well filled. But he would not take up any more of the time of the Congress by remarks of his own, since it was already past the hour when it should have assembled, and it was important to proceed to business. The Secretaries had in their hands certificates and credentials from various parts of the country, and if there were any not yet handed in, now was the time to present them.

And accordingly, numerous certificates and lists of delegates were passed over to the officers.

Mr. S. WALKER, of Massachusetts, moved that the President and Vice Presidents of the North American Pomological Convention, be requested to take seats and act as members of this Congress. Carried.

For the purpose of facilitating business, the CHAIR desired gentlemen present to answer to their names as one of the Secretaries read the certificates that had been sent in, and, if they belonged to committees, to state whether their associates, if not already in attendance, would be present.

Mr. S. B. PARSONS then read the credentials in his possession, and from the responses it appeared that the subjoined States were represented by the following gentlemen, most of whom were delegates from Horticultural Societies :

MAINE.

State Agricultural Committees.—Henry Little, Bangor; S. L. Goodale, Saco.

Bangor Horticultural Society.—Albert Noyes.

VERMONT.

Addison County Agricultural Society.—Solomon W. Jewett, Henry C. Hunt.

Bennington County Agricultural Society.—Russell Mattison, Martin Slocum, German Mattison.

MASSACHUSETTS.

Massachusetts Horticultural Society.—Marshall P. Wilder, B. V. French, Samuel Walker, Robert Manning, C. M. Hovey.

Essex Institute.—Robert Manning.

Worcester Horticultural Society.—S. H. Colton, D. W. Lincoln.

New-Bedford Horticultural Society.—William P. Jenney.

Hampden County Horticultural Society.—J. T. Ames, B. K. Bliss, Titus Ammidon, Rufus Whittier.

Berkshire County Horticultural Society.—Asahel Foote.

CONNECTICUT.

New-Haven County Horticultural Society.—George Gabriel, A. S. Monson, M. D., John J. Walter, E. E. Clarke, James T. Gerry, S. D. Pardec, E. H. Bishop, M. D., Charles B. Lines.

Hartford County Horticultural Society.—H. W. Terry.

NEW-YORK.

New-York State Agricultural Society.—Herman Wendell, M. D., Luther Tucker, James Wilson, William Thorburn.

American Institute—C. H. Hall, Benjamin Ayer, H. Meigs, Lewis Morris, J. L. Phelps.

Orange County Agricultural Society.—Andrew J. Downing, Charles Downing, Andrew Saul, Charles Hamilton.

Buffalo Horticultural Society.—Benjamin Hodge, Lewis Eaton, Hiram Barton.

Queens County Agricultural Society.—G. W. Huntsman, R. B. Parsons, S. B. Parsons.

Oswego Horticultural Society.—J. W. P. Allen.

Genesee Valley Horticultural Society.—P. Barry.

Clinton County Agricultural Society.—Jonathan Battey.

Greene County Agricultural Society.—T. L. Prevost.

Columbia County Agricultural Society.—Elbridge G. Studley.

Dutchess County Agricultural Society.—John R. Comstock.

Fishkill Landing Farmers' and Gardeners' Club.—Charles Dubois, Daniel Brinkerhoff.

NEW-JERSEY.

Pomological Society of Jersey City and Vicinity.—John Eltringham, M. C. Morgan, Henry Steele, George M. Danforth.

New-Jersey Horticultural Society.—H. W. S. Cleveland, Ira B. Underhill, John S. Chambers.

Essex County Institute.—Jabez W. Hayes, J. M. Ward, J. J. Mapes, William Patterson, William Reid, Moses B. Coe.

Burlington County Agricultural Society.—Thomas Hancock, George Dugdale, George Deacon.

North American Phalanx Association.—Charles Sears, George B. Arnold.

PENNSYLVANIA.

Pennsylvania Horticultural Society.—Thomas Hancock, William D. Brincklé, M. M., Robert Buist, J. E. Mitchell, Robert Hare, M. D., Thomas P. James, Thomas Ridgeway, Gerhard Smidt.

Chester County Horticultural Society.—Paschall Morris, Thomas Harvey.

DISTRICT OF COLUMBIA.

Washington Horticultural Society.—Joshua Pierce

GEORGIA.

Fruit Growers of Athens.—William N. White.

OHIO.

Cleveland Horticultural Society.—A. McIntosh, William Case, L. Henderson, J. F. Jenkins, F. R. Elliott.

Toledo Horticultural Society.—F. J. Scott, William Scott.

ILLINOIS AND WISCONSIN.

Fruit Growers of Illinois and Wisconsin.—John A. Kennicott, M. D.

IOWA.

Southern Iowa Horticultural Society.—Greenleaf C. Neally.

It being known that there were several gentlemen in the hall, not regularly appointed delegates from any society, who took great interest in Pomology, and whose counsel and assistance would be valuable to the Congress, it was unanimously voted, on motion of Mr. WALKER of Massachusetts, that all such persons be invited to take seats with the members.

The following named gentlemen accepted the invitation, and participated in the proceedings of the Congress :

A. A. Edgerton, Danvers, Mass.

F. Trowbridge, New Haven, Conn.

L. T. Noble, New-York city, N. Y.

D. F. Manice, Remsted, “

J. B. Mantell, New-York Island, “

G. P. Disosway, Staten Island, “

Edward Smith, Ontario county, “

Edward Stevens, Jersey City, N. Jersey.

John O. Hughes, Trenton, “

David Miller, Jr., Carlisle, Penn.

John M. Summary, “

Delegates, 96 ; others, 11. Total, 107.

A large number of others were present who did not hand in their names.

The Congress being now ready to proceed, it was voted to appoint a committee of three, to receive the lists and make a registry of the different collections of fruits presented for consideration. The CHAIR appointed Messrs SAUL of New-York, COLTON, of Massachusetts, and REID, of New-Jersey.

The CHAIR stated that a number of communications had been received, bringing to the notice of the Congress the important subject of the state of the cultivation of several fruits in certain and different localities. He suggested that all these be referred to the chairman of the General Fruit Committee, to be considered and reported upon if necessary, with any suggestions on the subject which might seem desirable. This course was adopted, and the communications referred accordingly.

The PRESIDENT next called upon the chairman of the General Committee for a report.

In answer to this call, Mr. A. J. DOWNING, of New-York, chairman of the committee, offered the subjoined remarks :

Mr. PRESIDENT,—I have had placed in my hands a series of resolutions passed at the late meeting of the North American Pomological Convention at Syracuse. They were, I believe, passed unanimously by that body ; and, as they have reference to the action of this meeting, I will beg your indulgence for asking attention to them.

It affords me one of the most striking proofs of general interest in the public mind, on any topic of importance, when the same movement takes place in different parts of the country at the same time, without any concerted action, and simply from a conviction which has arisen, that such a step is demanded by the public good.

Such a conviction, sir, gave rise to the formation of two Pomological Conventions in the year 1848 ; one held at Buffalo, and the other in this city. The bare fact that two spontaneous movements were made to form national associations of this kind, proves, I repeat, that the time had come when cultivators in the country at large felt the necessity of some National Association, which should be able to do, for the whole Union, what the Horticultural societies have done, and are doing for various states.

But, sir, this spontaneous movement towards a good and laudable
[Assembly, No. 199.]

object, while it shows the public zeal in that object, is not, of itself, always sufficient to attain it. It is also necessary that there should be *concert of action* and *unity of purpose*, to bring about any entirely satisfactory results, in a body which seeks to perform any useful acts for the country at large. Had the members of these two conventions, brought together by two separate calls (issued at about the same time,) all met in one body, there can be no doubt, from the real identity of the interests most important to all of them, that immediate and complete concert of action would have been the result. It needs no demonstration to prove that the information which the public at large expects to derive from a National Convention of Fruit Growers, and the importance which they will attach to the acts and decisions of such a body, must depend almost entirely upon its being composed of the aggregate of intelligence and practical knowledge of the whole country. In other words there must be, there can be, but *one* National Convention, in order to obtain the confidence and to influence the opinion of the country generally.

I confess, sir, entertaining these views, that I am not a little gratified to find that the North American Convention, at its late session at Syracuse, has entertained the same opinion; and has accordingly appointed a committee of five gentlemen, most of whom are here present to confer with this Congress on the union or consolidation of the two bodies. I am confident that I speak the sentiments of every member of this Congress, when I say that, from the first, no other spirit has actuated it, or any member of it, but a hearty desire to do all, and everything, with a view to the establishment of a *truly National Association*, based on no narrow or sectional feeling, but on the broadest spirit of nationality.

Whatever fruits may be cherished and recommended for culture by a Convention of Fruit Growers, it is plain to me, sir, that the first fruit on the rejected list should be the "apple of discord." (Applause.) I therefore, confident of the unanimous concurrence of this body, move that a committee of five be appointed to meet the committee sent here by the North American Pomological Convention, to confer upon some plan of consolidating the two bodies, and to report to this Convention during its present session.

This motion was put and unanimously adopted.

Dr. HERMAN WENDELL, of New-York, then remarked, that as

chairman of the committee of the North American Pomological Convention which had been recently in session at Syracuse, he had great pleasure in presenting the preamble and resolution unanimously adopted by that body. But before reading them he would beg leave simply to observe that the feelings of kindness suggested by Mr. DOWNING, in his remarks, as existing towards that Convention, by this Congress, were fully reciprocated on the part of the members of that assemblage. Dr. W. then read the preamble and resolution, which are as follows :

“Whereas the National Pomological Convention held at Buffalo, in September of 1848, under the auspices of the New-York State Agricultural Society, composed of delegates from fifteen States and the two Canadas, was the *first* general Convention of such character ever convened in the United States : and whereas that Convention unanimously resolved, that hereafter an annual Convention of like character should be held, under the title of the North American Pomological Convention ; that the first meeting with that title should be held in the autumn of '49, at the place where the great Fair of the New-York State Agricultural Society was to be held, and on the day succeeding the close of said Fair ; therefore we consider this Convention entitled by courtesy to perpetuate itself, but being aware that a Convention of an analogous character was held in the city of New-York in the autumn of '48, and that said Convention organized itself into a permanent association, under the title of the American Congress of Fruit Growers, which is to assemble in said city of New-York on the 10th day of October next, and believing that the advancement of Pomological Science, as well as the inclination and interests of Pomologists throughout this continent, will be best promoted, by a merging of the two apparent conflicting associations into one general organization for future operations : Therefore, be it

“*Resolved by this Convention*, That a committee of five be designated by its President, whose duty it shall be to attend the coming session of the American Congress of Fruit Growers, and confer with the said Congress, or a committee whom they may select, in relation to the meeting of the two associations, and as far as this Convention is interested, the settling of questions of priority of organization, places of next meeting, and title of Association, shall be left to the committees whom the two organizations may appoint, and that we

will exert ourselves to induce a general attendance of those interested, wherever the joint committee determine the next Convention shall be held, but we cannot omit giving it as our opinion, that the cause of Pomological Science will be most promoted, and the feelings of the great mass of Pomologists best satisfied, if the next meeting should be held in Cincinnati, or some other western city."

Dr. WENDELL then announced to the President, that Dr. KENNICOTT, F. R. ELLIOTT, CHARLES DOWNING, JAMES J. MAPES, BENJAMIN HODGE, and himself, the committee of the North American Pomological Convention, to confer with this Congress, or a committee of it, in relation to the matters referred to, in the preamble and resolution which he had just read, were present, and waited the further action of this Congress.

The CHAIR then appointed as the committee under Mr. DOWNING's motion, Messrs. A. J. DOWNING, of New-York; WALKER, of Massachusetts; BRINCKLE, of Pennsylvania; MONSON, of Connecticut; and MCINTOSH, of Ohio.

Dr. WENDELL suggested that as the committee of the North American Convention consisted of six, it would be proper to have the same number from this Congress, and he moved that the PRESIDENT be added. Carried unanimously.

Mr. A. J. DOWNING remarked, that several reports had been placed in his hands, of which it was impossible yet to give a digest; but there was one subject of considerable importance, which had been presented to the last Convention, on which he had something to offer for consideration. He meant the subject of rejected fruits. The committee on the part of Massachusetts, had submitted to the general committee a list of such pears as in their opinion might be placed upon the *rejected list*. This list he should be happy to present to the Congress, name by name. If we could, at this session, succeed in rejecting a number of worthless fruits, which were continued in the catalogue only from courtesy, it would be a great step gained.

On motion, it was voted that the fruits on the list be taken up, and considered separately.

Mr. DOWNING said the first on the list were four varieties of pears, the *Alexandria of Russia*, the *Admiral*, the *Aston Town*, and the *Ambrosia*. It was proposed that the Congress should reject them all.

The CHAIR observed that they had been proved in the vicinity of

Boston, by the President of the Massachusetts Horticultural Society, and others, and pronounced far inferior to a vast number of other varieties. If no other objection was made, they would be considered as rejected.

Mr. FRENCH, of Massachusetts, was not prepared to proceed in this way. The four pears now named, might be worthless enough, and he was willing they should be superseded; but he feared the course proposed to be taken, might lead to evil results in the end. It appeared to him, that it would be enough for this Congress to rule fruits in; for its members to decide among themselves, what they really approved, and leave to the wise in the community, to say whether they would cultivate other varieties or not. He made these remarks because it might happen that a pear, a third-rate one, perhaps, as the *Buffum*, would be erased from the list to be cultivated; and that such subsequent differences of opinion in regard to it might arise, as to make gentlemen sorry for what they had done. Suppose this Congress should rule a fruit out, and the next should rule it in; what weight could be attached to the decision of either? He knew the catalogue was much too large; in regard to the apple, for instance, instead of the present cumbersome list, one of about thirty good varieties, was as much as any person ought to expect or desire; but there might be a difference of opinion, even in that. He wished the Congress not to decide upon excluding any fruits, but to rule in, and recommend a few of the best, and leave the public to gather from them as they chose.

Mr. WALKER, of Massachusetts, observed that the list was made out under the directions of the last convention. There did appear to be a large majority of the members last year, that not only wished, but demanded a list of *rejected fruits*. He thought, then, that we were not ready for it, but the meeting did request the several State committees to report to the general committee, a list of worthless fruits, in their respective States. The Massachusetts committee had only obeyed these instructions of the convention; and in so doing, they had followed the example of the London Horticultural Society, which, as every gentleman knew, placed a cipher against the names of worthless fruits in the catalogue. These four pears were among them, and there were about 160 pears rejected, in all, by that Society, if he rightly remembered. It was undeniable, that there were large

numbers of worthless pears and apples, which ought to be ruled out of good company.

Mr. HOVEY, of Massachusetts, said he was not present when the vote referred to was taken, last year, and did not now know whether he should have opposed it or not. But he agreed with Mr. French, that we ought to act very cautiously indeed, and he should prefer that the Congress restrict itself to recommending such fruits as were really worthy of it, and leaving the public to take its own course. Mr. WALKER had said that the London Society had rejected many pears. He was aware of it, and that the *Ambrosia* was one of them. Yet the *Ambrosia* was by many considered first-rate. He should not deny that there were many in the catalogue utterly worthless for cultivation; neither could it be denied that in the country there was a vast number of seedling pears coming up every day, and it might be that in time we should have an American list, so good that all others would be rejected. But cultivators who wished a large number of varieties, would not do so. People differed as to fruits, according to the different objects for which they wanted them. He might instance, as to this, the *Old Bell* pear, which amateurs might wish to have rejected, but which cultivators would not give up on account of its superior productiveness, and great profitableness as a market pear. He had never fruited the *Ambrosia*, but he trusted that no fruit would be rejected on hearsay. Again, some on the proposed rejected list might be synonyms, and not the true variety. Though in favor of reducing the list, he hoped we should not go too fast, nor reject any except those we knew to be worthless.

Mr. HAYES, of New-Jersey, said that although the convention last year did pass the vote spoken of by Mr. WALKER, yet it appeared to many members that it would be much better to select, and make out a list of best fruits in the first place. Massachusetts had sent in this list as being worthless with her; but in other parts of the country many of these same fruits might prove of excellent quality. A distance of only half a mile in location, sometimes made great difference in quality. The *St. Michael* pear, for instance, was worthless at Boston, but in western New-York it was one of the best, and it would rule in the market, even though ruled out of it by us.

The CHAIR observed, that from an experience of fifteen years there could be no doubt that some varieties, *in comparison with other fruits*,

were worthless all over the United States; and he believed the committee only intended, in their report, that *such* had better be exterminated. Still he wished to proceed very carefully, and if any gentleman objected to the rejection of any fruit, he would let it stand. As to these four pears, there were over a hundred others infinitely superior to them, and if they could be put out of sight it would be the better for us.

Mr. HANCOCK, of New-Jersey remarked that the *Aston Town* always cracked badly with him. He had never been able to raise a good crop.

Mr. HOVEY moved that all the fruits recommended to be placed upon the *rejected list* should so be done without debate, unless objections were made.

Mr. HAYES hoped that the committee would give some reasons for the rejection of the fruits.

Mr. DOWNING replied, that if we should calculate ninety *per cent* of the millions of fruit trees in this country, to be really not valuable for general cultivation, and if we could supply their places with others unquestionably good, certainly that would be a very desirable result. He was very far from supposing that the present list could be adopted exactly as it stood, but if a congress like this, composed of gentlemen from all parts of the country, from Bangor to Illinois and Iowa, could agree upon any thirty varieties, for example, which it was not worth while to cultivate, in that case a great step would assuredly have been taken.

Mr. FRENCH said that he likewise was absent last year when the vote spoken of was taken, but he must still continue to think it better to agree only on a list of such fruits as were worthy of cultivation. He acknowledged these four pears under consideration to be good for nothing, but coming down to the *Buffum* pear, (which, perhaps, he had marked a step too high before, and which might not be regarded as more than fourth-rate,) that was a hardy tree and good bearer. True, there were fifty other varieties whose fruit was far better, but it did appear to him better for the congress to confine itself to a recommendation of what its members thought best, than to undertake to prescribe any variety.

Mr. WALKER rejoined, that the committee had no wish whatever to strike off a single pear, if it were not desired by the congress. Members, and the people generally, wanted to know what varieties were

in fact worthless, on the whole, so as to avoid purchasing them. Every gentleman could judge for himself what suited him, but it was desirable that all should be enabled to profit by the experience of each other. Such was the idea entertained by the Massachusetts portion of the committee, and on that principle its report had been made. As to its reliability, he thought that a uniform experience of ten, fifteen, or twenty years, was pretty good authority. If the Congress should agree to strike off one in every ten proposed in the report, he should be as satisfied as though it were adopted entire, for he should consider that a large gain had been attained. But if gentlemen were still determined to go through an experiment individually with all varieties of fruits, whether proposed to be rejected or not, why then all the collective experience here would simply go for nothing. Every body could try and judge for himself on each fruit presented; but it was to afford each one the benefit of the collective experience of the whole mass, that this assemblage of Fruit Growers had come into existence. Mr. WALKER said he differed from his friend, (Mr. FRENCH) as to the Buffum pear, and placed it side by side with the St. Michael.

Mr. HAYES wished to give all parts of the Union the advantage of proving and profiting by the decisions of the Congress. If a list of best fruits were established and published, they would have that benefit. Let an approved list be first given out, and then as we went on, we might come down to poorer and poorer, till we satisfactorily arrived at such as were not worthy of any attention at all.

Mr. BARRY, of New-York, said that in regard to this list, many gentlemen might hear the names of varieties of which they knew absolutely nothing, and as to which, of course, they could not judge from experience. He knew nothing of these four pears, but was willing to reject them all on the testimony of those who did. Now, this was a list from Massachusetts; these fruits were worthless there, and if they should be cast out of cultivation in that State, in consequence of the adoption of the list, some one good purpose at least would be effected.

Mr. HANCOCK thought that Mr. FRENCH misapprehended the state of the question. He did not, himself, consider this as a list of fruits rejected by this Congress, but only a list of those rejected so far as cultivation in Massachusetts was concerned. It was prepared for that State, and would, he supposed, be followed up by similar reports from other States in different parts of the land. He conceived this to be

be only feasible way of getting at the desired result, and if it were so; he imagined, then this was only a rejected list for Massachusetts, and not a general list of rejected pears sent forth under the authority of the Congress.

Mr. S. B. PARSONS rather regretted to observe an indisposition to establish a list of rejected fruits. The Convention of last year, and the present Congress, had assembled for the purpose of collecting, and afterwards publicly diffusing all the knowledge concerning the culture of fruits, the varieties to be preferred, and those to be avoided, which it was possible to obtain. This body was engaged in laying down a pomological chart, on which it was certainly very desirable, not only to trace a channel for full, good, and safe navigation, but also to point out distinctly, all the shoals and quicksands, and not oblige mariners to discover them by running upon them. He therefore hoped that the list would be considered and adopted, so far as might be deemed expedient for general information.

Dr. KENNICOTT, of Illinois, hoped that a rejected list would be decided upon; as otherwise fruit growers would never get a settled and approved list. A beginning ought to be made, and if we could begin at both ends, recommending some varieties and rejecting others altogether, so much the better.

Mr. UNDERHILL, of New-Jersey, said we had so great a variety of country and climate, that it seemed as if rejected fruits should be considered as rejected only for particular localities and conditions. It was impossible to make a list of rejected varieties that should be applicable, in all respects, to the whole country, but each portion must judge for itself.

Mr. HANCOCK moved that the list offered be considered and entered on the records, as from the Massachusetts committee, and applicable only to Massachusetts. The Congress must come to that in the end, for every State locality, if the present course was to be pursued; for it was impossible to frame a list of fruits that ought to be rejected throughout the whole country, from Maine and Massachusetts, in the north, to North Carolina and Georgia in the south, and Illinois and Wisconsin in the west. For himself, in regard to the *Ambrosia* pear, he had fruited that variety, and found it good for two years, and the same had been the case in his neighborhood.

Mr. DOWNING said that if the basis spoken off by the last gentle-

man were to be adopted, it would be just as impossible to agree upon a list to be recommended as upon one to be rejected. No one variety could be proposed as being universally or equally good in all sections of the country ; but there were some few plain, obvious principles,* which would hold in the decision as to each fruit as it came up. If, for instance, the *Ambrosia* pear should be pronounced good in any considerable region, then it ought not to be rejected. No variety should be placed on the list of rejected fruits, whilst there was any hope that it might prove to be good.

MR. HOVEY agreed with the last speaker, and it was because he did so that he had moved that any fruit on the rejected list, to the prohibition of which any gentleman might except, be retained. Yet, if we could only agree on abandoning ten worthless varieties, some advantage would be gained, and the beginning of a useful result would be reached.

MR. NOBLE, of New-York, inquired whether the report under consideration was a report from the fruit committee of this Congress or not ?

MR. WALKER, in reply, stated that the list of pears proposed to be rejected was made out by the sub-committee on the part of Massachusetts, and reported by them to the general committee, which body now laid it before the Congress as its own report. Massachusetts had nothing more to do with it.

MR. DOWNING informed the Congress that the statement of Mr. WALKER was entirely correct, and that, moreover, before submitting the list under consideration, the general committee had stricken off several varieties that the Massachusetts sub-committee proposed to reject.

DR. MONSON, of Connecticut, wished to know if these gentlemen who advocated a rejection, on the one side, and those who disapproved of it, on the other, had a general practical experience of the success or failure of the fruits under consideration ? or were they like the physician who—finding that an English patient, who ate of Westphalia ham while under treatment for a fever, recovered from the disease, thereupon prescribed the same article to a Scotchman suffering from the same malady, who, nevertheless, died—entered it upon his books that Westphalia ham would cure an Englishman, but kill a Scotchman ? Of course, there would be differences in the result of cultivating the same fruit in different sections of the country, different climates, and

different soils; but if it should be found that any one variety was bad at Boston, and also at Syracuse, he would have nothing to do with it.

The question being on Mr. HANCOCK's motion, that the proposed list be considered as only applicable to rejected varieties, for Massachusetts,

Mr. WALKER objected to that motion, as out of order. The report was not a report from the Massachusetts Horticultural Society, nor from the Massachusetts portion of the general fruit committee of this Congress. It was the report of the whole of that committee, under the orders of the convention of last year. And some gentlemen had been entirely mistaken in the grounds which they assumed in opposition to its adoption. It did not propose to exclude from general cultivation all such fruits as were found not to answer in Massachusetts. The contrary was the fact; for while the St. Michael's pear, known to be excellent in New-York as the Virgalieu, and in Philadelphia as the Butter pear, was utterly worthless in Boston, the committee had not even proposed to exclude it. But when, from our own experience and the testimony of others, a variety was good for nothing at Boston, equally bad here, worse perhaps in Philadelphia, and totally unworthy of cultivation at Cincinnati, then, on this united testimony of its worthlessness everywhere, the committee had decided to recommend its rejection.

Mr. HANCOCK expressed himself satisfied. He had got the explanation that he desired, and was perfectly willing to withdraw his motion.

The question then recurred on Mr. HOVER's motion, which was adopted, with an amendment providing that the names of the objectors to the rejection of any particular variety of fruit, should be entered on the records.

So it was decided that the fruits contained on the rejected list, should be taken up *seriatim*: those varieties to which no objection was made, should be rejected without debate; those to whose rejection any gentleman did object, should be stricken from the list. The names of objectors to be recorded in each instance.

The matter thus being settled, Mr. DOWNING again commenced the reading of the list of rejected fruits.

[The rejected fruits on which no discussion took place, will be found in the fruit list towards the end of this report. The debates that occurred on fruits proposed for rejection, but retained, and on others proposed for general cultivation, will be found in the following pages, in the order of their occurrence.]

PEARS WHICH IT WAS PROPOSED TO REJECT.

Ambrosia.—Objected to by Mr. ELLIOTT, of Cleveland, Ohio, and retained.

Amundé Double.—Objected to by Mr. MANICE, of Long Island, N. Y.

Bcurré, d'Elbec.—Objected to by Mr. HOVEY, of Boston, Mass.

Boucquia.—Objected to by Mr. HOVEY, of Boston, Mass.

Bergamette Parthenay.—Objected to by Mr. MANTELL of New-York Island.

Cumberland.—Objected to by Mr. MANICE, of Long Island. He considered it a good baking pear.

Colmar d'Eté.—Objected to by Mr. HOVEY, of Mass., and Mr. MANTELL, of New-York.

Infant Prodige.—Objected to by Mr. S. B. PARSONS, of Flushing, New-York.

Fondante d'Eté.—Objected to by Mr. GABRIEL, of New-Haven, Conn. With him it was a superior pear on quince stock.

Gilgil.—Objected to by Mr. REID, of Elizabethtown, N. J. With him it was a good pear on quince. Also, by Mr. MANTELL, of N. Y. It was good with him on quince.

Lodge.—Objected to by Dr. BRINCKLE, of Philadelphia, Penn., and Mr. HANCOCK, of Burlington, N. J.

Valleé Franche.—Objected to by Mr. HOVEY, of Boston, Mass.

Windsor.—Objected to by Mr. MCINTOSH, of Cleveland, Ohio; Mr. REID, of Elizabethtown, N. J.; Mr. HOVEY, of Boston, Mass.; and Mr. SAUL, of Newburgh, N. Y.

Rousselet de Stuttgart.—Objected to by Mr. BARRY, of Rochester, N. Y.

Belle de Bruxelles.—Objected to by Mr. BARRY, of Rochester, with him it was a fine, beautiful fruit. Also by Mr. HOVEY, of Boston, who had found it a very handsome and showy pear, and had often been offered a York shilling apiece for the fruit by visitors, who saw it growing on the tree at his establishment. Judging it by strictly Pomological rules, he thought it about a third rate fruit. Mr. WALKER, of Boston, said the fruit was handsome, indeed, but utterly worthless. It was, perhaps, the most deceptive variety in the whole catalogue. He apprehended his friend HOVEY did not sell it

because it was all show and nothing else. He, too, had had frequent applications to sell it, but had always advised people to taste the fruit before purchasing, and had generally found that the first taste was quite sufficient.

Mr. DOWNING then said that the remainder of the list, so far as it was ready, which it was proposed to reject, consisted of Apples.

[As with the Pears, the Apples which were rejected *nem. con.* will be found in the list of rejected fruits.]

The only other varieties were the following :

APPLES WHICH IT WAS PROPOSED TO REJECT.

Black Apple.—Objected to by Mr. HAYES, of New-Jersey.

Winter Pearmain.—Objected to by Mr. HANCOCK, of Burlington, N. J., and Mr. HOVEY, of Boston. Mr. FRENCH, of Braintree, Mass., said it was a very excellent apple, but he thought it hardly worth cultivation, since it was so shy a bearer

This completed the list of fruits proposed for rejection, so far as the committee was prepared at present to offer it.

The CHAIR communicated a letter from the Pennsylvania Horticultural Society, inviting the Congress to hold its next session at Philadelphia, and offering to provide a hall and all requisite accommodations. On motion of Dr. WENDELL, it was referred to the committee appointed under Mr. DOWNING's motion.

On motion, it was voted that the officers of the American Institute be invited to take seats as members of this body.

On motion of Mr. WALKER, the Congress then adjourned, till half past 3 o'clock.

AFTERNOON SESSION.

The Congress came to order at 4 o'clock the PRESIDENT in the chair.

Mr. (President) WILDER, in behalf of the associated committees of the North American Pomological Convention, and of the present Congress, submitted the annexed report.

The committee appointed for the purpose of conferring with the committee sent to this Congress by the North American Pomological Convention, on the propriety and practicability of uniting or consolidating the two associations, respectfully report :

That, finding the joint committee were fully convinced of the ad-

vantage in all respects to the country at large, and to the cause of Pomology, of having but one National Convention of this kind, which should, as far as possible, embody all the talent and experience of the land—a conviction which this Congress has always firmly held—they had great pleasure and unanimity in immediately adopting the following resolutions:

1. *Resolved*, That the two Conventions, hitherto known as the North American Pomological Convention, and the American Congress of Fruit Growers, be hereby consolidated.

2. *Resolved*, That the consolidated association shall hereafter be known as the “AMERICAN POMOLOGICAL CONGRESS.”

3. *Resolved*, That the next session of the Pomological Congress shall be held at Cincinnati, in the autumn of 1850, and that the time thereof be fixed by the President of this Congress, in conjunction with the President of the Ohio State Board of Agriculture; and that notice of such meeting be given to all Agricultural, Horticultural, and Pomological Societies throughout the country.

4. *Resolved*, That the meetings of this Congress, after the next session, shall take place biennially, and that the meeting for 1852 shall be held at Philadelphia.

All of which is respectfully submitted.

MARSHALL P. WILDER,

Chairman.

The question being on the acceptance of this report and the adoption of the resolutions,

Mr. HANCOCK moved to strike from the fourth resolve the clause providing that the session for 1852 shall be held at Philadelphia.

Mr. WALKER was opposed to this motion. This Congress was honored with the presence of Dr. BRINCKLE, of Philadelphia, who had been placed upon and had acted with the committee; and after full discussion, it had been agreed, on the whole, that the course resolved upon was the best that could be adopted. It would be too tedious to give a full explanation of the reasons which had governed the committee, but he hoped and trusted that the harmony of its decision would not be disturbed in the Congress. If there was any one place above others at which he wished to meet his pomological friends and associates, it was Philadelphia. He wanted again to tread the beautiful hall in that city, and witness another splendid dis-

play of fruits and flowers within its walls. He wanted again to mingle in the crowds that thronged its precincts, and whatever squeeze gentlemen might be subjected to, he hoped they would not squeeze out of these resolutions the provision for assembling at Philadelphia in 1852.

Mr. HOVEY remarked, that he had no objection to the resolution in itself, but he feared it might tend to create some sectional bias or prejudice. He wished to know if the present officers and members of the Congress would hold over until the time in question.

The CHAIR replied that they would not. New members must be chosen for the next Congress and new officers, after it had assembled.

Mr. HOVEY said he had so supposed, and since there might be an entirely new set of delegates at Cincinnati, in courtesy to them, at least, it would be well to leave the choice of a place for the succeeding session in their hands.

Mr. HANCOCK declared that if he had any personal choice in the matter, it was in favor of Philadelphia, but it was the precedent of fixing a place so long beforehand that he feared. He was well aware that none but the kindest feelings actuated the committee, but all precedents, which some times caused so much trouble, grew up in the same way; and if this Congress could fix the place of meeting two years in advance, it might do so for ten or twenty years ahead; and though, individually, he should be glad to have the session of 1852 held in Philadelphia, his favoritism would not suffer him to go beyond the expression of that individual feeling.

The question was then put upon the motion to strike out, and it was rejected. The report was then accepted, and the resolutions adopted as they came from the committee.

Mr. GABRIEL, of New-Haven, said he wished to retract the objection he made in the forenoon to the rejection of the *Fondante d'Eté* pear. He had in his mind at the time the *Doyenné d'Eté*. Accordingly the *Fondante d'Eté* was again placed in the list of rejected pears.

The General Fruit Committee was then called upon to proceed in its report.

Mr. DOWNING begged leave to continue, by submitting for the approval of the Congress, a list of fruits which the committee regarded as worthy of general cultivation. With regard to Pears the Conven-

tion of last year had recommended a considerable number of varieties, and it was now proposed to add a few others. And first, the

Rostiezer Pear.—The PRESIDENT remarked that in the vicinity of Boston, this pear ranked almost as high as the Seckel.

Dr. WENDELL stated that it bore the same character at Albany. He had fruited it, and found it one of the very best of pears.

Mr. WALKER thought that the Rostiezer was imported by the President some ten years ago, for the late Mr. MANNING, of Salem, Mass. If he recollected aright, that gentleman was looking, at the time, for second-rate European pears—having found that many varieties which were classed as first-rate abroad did not meet the expectations of fruit growers here, whilst others which were there placed only in the secondary class—in our climate, under our warm skies and beneath our bright suns—deservedly ranked among the first. The Rostiezer was one of these. And from the first time he (Mr. W.) had tasted it until the last, he had had but one impression in regard to it—that the pear was among the very first-rate, comparing favorably with the Seckel, as one of the sweetest and best pears. He knew that was saying a great deal, but he thought the future would bear out the assertion.

The *Rostiezer Pear* was, without further remark, unanimously adopted, as being worthy of general cultivation.

Andrews Pear.—Col. HODGE, of Buffalo, N. Y., had uniformly found this a first-rate pear.

Mr. WHITE, of Athens, Georgia, had fruited it, and always found it fine.

Mr. COLTON, of Worcester, Mass., said it was not always fine at Worcester, being apt to crack and be knurly.

Mr. HOVEY had never known it to crack, but it was knurly some times. He had always found it one of the best of pears—the very best American variety we had. It was a very full bearer, so much so, indeed, that it was difficult to get the wood to grow to vigorous strength. He knew one tree that had been grafted for sixty years, and had always borne abundantly for forty. It was one of the best of pears.

Mr. S. B. PARSONS, of Long Island, said it was a good bearer, but the fruit decayed at the core.

Mr. ELLIOTT, of Cleveland, Ohio, found the same fault with it.

Dr. MONSON, of New-Haven, Conn., had fruited it two years, and found it a good bearer. He never knew it to decay at the core.

The PRESIDENT said that according to his experience it never cracked. Mr. COLTON's case he thought must be a singular one.

Mr. BARRY, of Rochester, N. Y., was of opinion that the cracking might be owing to a rot at the core. It had been found to be insipid and poor from that cause.

Mr. HAYES, of New-Jersey, considered the Andrews a very fine pear, and did not think it cracked more than any other variety.

Mr. MANNING, of Salem, Mass., had grown it for ten years at least, and was very sure he never saw it cracked or blighted, while on the other hand it was a good fruit and a great bearer.

Mr. FRENCH said that Mr. MANNING's soil was about as poor as any fruit growers', and this pear flourished excellently with him, as gentlemen had just heard. In his (Mr. F.'s) opinion, it was a fruit that no pomologist should suffer himself to be without.

The *Andrews* Pear was then adopted.

Fulton Pear.—Mr. BARRY considered this one of the best of pears, about equal to the White or Grey Doyenné. He could recommend it with all his heart.

Mr. HOVEY likewise thought it one of the best. It had the excellent property of ripening gradually. His attention was called to it about nine years ago, by the late Mr. MANNING, who also regarded it as a very fine pear. It sold well in the market.

Mr. LITTLE, of Bangor, Me., said it had another good quality—that of being extremely hardy. This might be supposed, since it originated and flourished well in Maine.

Col. HODGE, of Buffalo, said with him it was one of the best pears.

The *Fulton* Pear was adopted.

[At this stage, Hon. M. P. WILDER, the President, was constrained to leave by other public duties, and placed SAMUEL WALKER, Esq., in the chair, who presided during the remaining sessions.]

Fondante d'Automne Pear.—Dr. BRINCKLE, of Philadelphia, said that this was one of the very best in quality.

Mr. WHITE, of Athens, said it held the same character in Georgia.

Mr. HOVEY did not doubt it. But it might be well to add that the name *Fondante d'Automne* was a synonym, and that the variety was introduced and first cultivated as the *Belle Lucrative*. It was so

first described, also, in Loudon's Magazine, and he would move to amend by substituting Belle Lucrative as the name of this variety.

Mr. FRENCH said that this pear certainly ranked deservedly very high, and no one wanting to cultivate good varieties, should be without it.

Mr. HOVEY's motion to amend was then carried, and the variety was adopted under the name of *Belle Lucrative*.

Urbaniste Pear.—Mr. WALKER remarked that this variety was frequently imported as the *Buerré Picquerry*, and was generally known in France by that name. It was adopted as the *Urbaniste*.

Buffum Pear.—Col. HODGE had cultivated the Buffum for a number of years, and though he was not prepared to reject it, he could not rank it higher than a second rate pear. It cracked, and the flavor was by no means superior.

Mr. MCINTOSH, of Cleveland, had also cultivated it for several years, and must say that as to the fruit, it was hardly as good as second rate. But as a *market fruit*, it was of the first quality.

Mr. HOVEY said that this fruit was not of the first quality in respect to flavor, but the variety made a beautiful appearance as an ornamental tree, and it was, besides, a prodigious bearer, the fruit hanging on the branches like strings of onions. And if well conditioned, the Buffum pear was as good as the Doyenné, when well ripened. If eaten at the proper time, it was far above a second rate fruit.

Mr. BUIST, of Philadelphia, remarked that it would require all the eloquence of gentlemen, and perhaps more, to raise this variety to the rank of a first class fruit. And he considered that what was wanted of this Congress, and what the Congress itself desired, was information as to, and decision upon, fruits, and fruits alone—not in respect to their beauty as ornamental trees.

Mr. S. B. PARSONS agreed with the last speaker. The qualities of fruits as *fruits*, it was the object of the Congress to determine, as far as possible.

Mr. HANCOCK said that in truth the Buffum pear ranked only as fourth rate, as the gentleman from Massachusetts, (Mr. FRENCH) had this morning observed. And if that gentleman now asked this Congress to recommend it for general cultivation, for one, he, (Mr. H.) could not do it.

Mr. FRENCH knew that the Buffum did not rule as high as many other varieties, but still it was worth cultivating.

Mr. DOWNING reminded gentlemen that the Convention of last year had determined to cast out all such classifications as *first rate*, *second rate*, &c., and to adopt the designations of "*good*," "*very good*," "*best*," as more definite and useful.

Mr. FRENCH said that then he should call the Buffum a *good* pear.

Mr. DOWNING observed in continuation, that this was a list for general cultivation, not one recommended to amateurs alone. If a particular fruit were only *good*, even if that were united with other desirable qualities, productiveness, hardiness, &c., he should be very willing to recommend it for general cultivation.

Dr. MONSON thought this a very desirable pear to have when others were scarce. It was a good bearer, and the tree was a beautiful one. Why not have such a variety on the list?

Mr. HOVEY said the Buffum was a *very good* pear, though not of the *best* description. But suppose that a person could have but two trees; though there were many better varieties which he would like to cultivate, would he not, on the whole, prefer a tree from which he could obtain four or six bushels of good pears for market, to one from which he could get only one and a half or two bushels? And having but two trees, would he not desire that one of them, at least, should be a large bearer? Of what use to a grower of fruit for the market would be a variety of greater excellence in itself, but of vastly greater inferiority in point of bearing? And even gentlemen who could afford to suit their fancy, did not want poor looking specimens in their grounds, and must therefore set some value upon the Buffum in consequence of the beauty of the tree.

Mr. BUIST said that if this pear should pass muster as being first-rate for its bearing qualities, still he could not recommend it as such to his friends.

Mr. MILLER, of Carlisle, Pa., said that some thought the rating of a variety depended upon the foliage, others upon the beauty of the tree, and others again upon the quality of the fruit. But surely the list was large enough to combine all these requisites.

Mr. HANCOCK commented upon the statement that the Buffum was a good fruit for the market. But was he to go to the market to be imposed upon? If the fruit was good, he cared nothing for the shape

of the tree, or what its appearance might be for a pleasure ground; but if he had the finest looking tree in the world, if the fruit was good for nothing, he would throw it under his feet. He would not be one to advocate a fruit of inferior quality, under the excuse that he had some trees to sell. He was a fruit raiser, but his friends should never rise up against him, charging him with having imposed on their ignorance.

Mr. DOWNING wished to correct the impression which the gentleman appeared to entertain. If any fruit was not worthy to be borne on the list, the committee had no wish to press its being put there.

Mr. BARRY said that there were several things which entered into the consideration of quality. Flavor was one, and a very important one, but there were others also. And he considered it hardly proper to insinuate any thing unworthy or knavish against gentlemen who spoke of fruits, and their qualities as "market fruits." Fruits were raised for the market especially, and they must be. And every body knew that it was not always true, that a variety which stood highest in point of flavor, bore the same rank on the market list. Take the Rhode Island Greening apple, for example, that fruit was not of first-rate flavor, but it was so productive, so hardy, and so sure a crop, that we could not do without it. Just so with many other fruits. Flavor was the first quality to be looked at, if gentlemen chose, but there were many others besides.

Mr. HANCOCK did not differ from the gentleman last up. Let each variety of fruit stand or fall on its merits. He acknowledged good bearing to be a part of the merits, but he would not make that quality a pretext for selling, to the simple, a fruit as being better than it really was.

Mr. HOVEY could not sit silent after hearing the remarks of the gentleman from New-Jersey, though his friend from Rochester had put the matter right before the Congress. But if all were to be accused who raised fruit for sale in the market, and consulted, consequently, the value for market of different varieties, he knew of very few who would not come under the gentleman's lash. In general, persons who cultivated fruit trees did it for what? Orchardists who raised fruits, did it for what? Why, to sell in the market. Some very respectable and respected persons in the gentleman's own neighborhood could tell him that, if he were ignorant of it himself. But

in determining the value of a fruit for this purpose, saleableness, as well as color, flavor, hardness, &c., must be estimated in the aggregate of its qualities; and if it proved to combine a majority of such qualities, then it should be considered as worthy of cultivation.

Mr. FRENCH said his only fear now was, that this pear would not get into the list. If he could have but one apple, it should be the Rhode Island Greening, though that variety was neither so handsome nor of so good flavor as many others. And so of the Buffum pear; it had its superiors, but it was well worthy of cultivation, and it was a variety which no fruit grower should be without.

Mr. MANNING observed that even in regard to flavor, the Buffum pear was sometimes found to be nearly first-rate. Very much depended upon its ripening, as to this. But flavor was not the only thing to be considered. Productiveness was another, and not an inferior one in many cases. Gansel's Bergamotte was not to be preferred to the Buffum if only a limited number of trees could be cultivated; for in the one case you would have perhaps half a bushel of very delicious fruit from each tree, and in the other two barrels of fruit, nearly as perfect if properly ripened. He should have no hesitation which to choose in such a state of things.

Mr. WALKER was under the impression, long ago that the Buffum could not be near so good a fruit as he had found it to be within the last five or six years. When ripened under a temperature of 65° or 70°, constant day and night, it attained a very high degree of excellence. Some of the very best judges, not knowing the perfection to which it had latterly been brought, on tasting it at Salem, declared they could not tell what the pear was unless it was an excellent St. Michael. The fruit was very much improved by early picking, and ripening in the house.

The *Buffum* pear was adopted.

Vicar of Winkfield Pear.—Mr. HOVEY proposed to amend by adding "or *Le Curé*," to avoid the danger to cultivators of importing under one name a variety which they already possessed under another.

Mr. DOWNING said that next to settling the quality of fruits, to settle their nomenclature was of importance, and for that reason the committee had not felt obliged to report all the names by which a

variety might be known. Nor did they deem such a course expedient on this very account.

Mr. HOVEY said, if we could settle the nomenclature of fruits to the general satisfaction, why well and good. He knew that the London Horticultural Society had adopted the title of Vicar of Winkfield, and that was good authority, so far as they were correct; but there was no good reason for following them in their errors. *Le Curé* was the shortest name, and the fruit had been known in France by that designation for twenty-five years.

Mr. S. B. PARSONS thought it very questionable propriety for this Congress to adopt synonyms of fruits at the present time.

The question was then taken, and the pear adopted as the *Vicar of Winkfield*.

Louisse Bonne de Jersey Pear.—Mr. PARDEE, of New-Haven, moved to strike out the qualification ("on quince stock") which the committee had introduced. It was as fine as any other pear on its own stock.

Mr. DOWNING said that with him it had not succeeded so well on pear as on quince.

Mr. SAUL, of Newburgh, N. Y., exhibited a dish of pears of this variety from Mr. WHITTIER, of Mass., which were grown on pear stock. They were as handsome as possible.

Mr. HOVEY was in favor of striking out the qualification. The pear was great on either stock, and people could please themselves.

Mr. PARSONS said the fruit was uniformly very good on pear.

Mr. McINTOSH had grown it both on quince and pear, and had raised on the latter a fruit which he should certainly have considered first rate, had he not obtained a crop so much superior on quince. But he was willing the qualification should be stricken out.

Mr. WHITE, of Ga., said that if it was better on quince than on pear, it must be excellent indeed.

The question was put, the motion to strike out carried, and then

The *Louise Bonne de Jersey Pear* was adopted.

Uvedale's St. Germain Pear.—The committee reported this variety as being excellent for baking, and it was adopted without debate.

This completed the list of pears proposed by the committee for the approbation of the Congress, as being worthy of general cultivation.

Mr. DOWNING said he had a small list of apples, and some other

fruits also to offer. He would continue, therefore, by naming the apples.

The first was the

Porter Apple.—Mr. HANCOCK said the Porter apple bore with him for the first time this season, and he found the fruit very poor and dry.

Mr. MCINTOSH said that in Ohio it was one of the best of apples.

Mr. HOVEY had known the Porter for twenty years, and had never found it other than very good. He had had it from dwarf trees, and found it at the first bearing as good as he ever knew it ; but as a general thing it was best not to judge of any fruit by the first crop. The Porter was best in September.

Col. LITTLE introduced it on the Penobscot twenty-one years ago, and it was universally considered in Maine as one of the best apples grown in the state.

Mr. HANCOCK regarded it as a second-rate grower, both in the nursery and on large trees.

Mr. MILLER, of Carlisle, had always found it very vigorous, upright and good. He suspected that Mr. HANCOCK's trees must be spurious.

Mr. FRENCH had fruited it thirty-one years, and always found it excellent.

The *Porter Apple* was adopted.

Hubbardston Nonsuch Apple.—Col. HODGE said that with him it proved very fine, and he should rank it No. 1.

Mr. FRENCH remarked that it had not proved very thrifty with him, but it was a very popular apple, and cultivators could not do without it.

Mr. HAMILTON, of Orange county, N. Y., said that with him it was a better grower than the Porter, and was a handsome, straight, thrifty tree.

Mr. HOVEY observed that it was quite as good and strong a grower as the Porter, and had a very handsome head. It made as much wood in three years, as the Baldwin in two. It was first introduced into Newton, Mass., several years ago, by Capt. HYDE, who found it whilst on a visit to Hubbardston, but could not learn whence it came. He brought down the scions in potatoes, and singularly enough they flourished. From these scions, thus brought to Newton, all the trees of this variety in the eastern part of New-England came. If kept

too long, say till March, the fruit became dry, and its good qualities were sacrificed. But if eaten in January, it was very good. The *Hubbardston Nonsuch* apple was adopted.

Fameuse Apple.—Mr. FRENCH said that in November, when it would otherwise be difficult to find a table apple, the *Fameuse* was in good eating order. The fruit was of fine flavor, though not a very great grower.

Col. HODGE had fruited it for twenty years. It required high culture, and when grown on rich land, was one of the very best. It some times bore too great a crop. It came from Canada.

Mr. MILLER had grown it on upland, and he concurred in the remarks of Col. HODGE.

Mr. McINTOSH said that in Ohio, they could not get it higher up than good; it was not *very good*.

Mr. DOWNING regarded it as one of the very finest dessert apples. The *Fameuse* apple was adopted.

Minister Apple.—Mr. BUIST inquired if this was the same as that awful, distorted, blue, green thing which he had seen at Providence, under the same name?

Mr. MANNING replied that the apple now under consideration had none of those attributes. He did not know of any that he should prefer to it except the Baldwin, and if he could have but half a dozen trees, the Minister should certainly be one of them.

Mr. HOVEY had no doubt that Mr. BUIST saw the Minister apple at Providence, though for his own part, he had never seen it either blue or green. He had, however, seen the Baldwin of very little color. The Minister was a very fine flavored apple.

Mr. HANCOCK said it was always of an ugly shape.

Mr. BARRY said it was very little known in western New-York, and it was his impression that it was only within two or three years that it had been generally known any where. It was entirely new to the western States, and he thought it had not been sufficiently tested to warrant its approval by this Congress.

Mr. BUIST said that this year the fruits that had been received from the east and north, and recommended as being of the first quality, had not so proved in his climate. He assured the assembly that he would not allow the Minister apple to be propagated in his nursery this season.

Mr. HOVEY observed that the report before the Congress came from the general committee, as a list adapted for the whole country, and he hoped no gentleman would suppose that eastern cultivators wished especially to add their own fruits to that list, if objected to by others.

Mr. HANCOCK said that he spoke for Pennsylvania. He was on the committee for that State, and if the committee had consulted on this particular matter, he was not present. And he doubted if the Minister apple was known to any member of the committee from Pennsylvania except himself.

Mr. DOWNING made some general remarks about the duty of the committee in receiving recommendations of fruits from different parts of the country, and the course that had been taken in weighing them and deciding upon them. He had a paper from Pennsylvania recommending the Minister apple, and if he mistook not, the gentleman's own name was borne upon it.

Mr. HANCOCK believed not.

Mr. SAUL moved to lay the question on the table, so far as regarded any endorsement of the Minister apple on the part of the Congress, and this motion prevailed.

Danvers Winter Sweet Apple.—Mr. HANCOCK said that this was a very good fruit, one of the best Eastern apples except the Baldwin.

Col. HODGE had tried it for six or eight years, and had found it very good.

The *Danvers Winter Sweet* apple was adopted.

On motion of Mr. SAUL, the Congress then voted to adjourn until 9 o'clock the next morning.

SECOND DAY.—Wednesday, Oct. 3, 1849. Morning Session.

The Congress came to order at half-past 9 o'clock, Mr. WALKER, President *pro tem.*, in the chair.

Mr. DOWNING, from the committee on the constitution and by-laws, submitted the following report :

The committee appointed at the last session to prepare a suitable constitution and by-laws, beg leave to report :

That after a careful consideration of the subject, it has appeared

wise to them not to encumber this body with a prolix constitution, but simply to offer a few concise by-laws, which should be sufficient for defining the general form and government of the association, without limiting its powers within any narrow or contracted bounds: leaving it for future legislation to provide for any unforeseen exigencies which may arise. They therefore propose, for the adoption of this body, the following

BY-LAWS.

1. The officers of this Congress shall consist of a President, a Vice-President from every State represented, (who shall, unless otherwise directed, be the President of some Horticultural Society of that State,) two Secretaries, a Treasurer, and a General Fruit Committee.

2. These officers, elected at one session of the Congress, shall hold their offices until the organization of the succeeding session, when a new election shall immediately take place, or until new officers are elected.

3. The chairman of the Standing Fruit Committee of every Horticultural Society in the United States and the Canadas, shall hereafter be considered as composing the General Fruit Committee. There shall be a chairman of the whole elected by this Congress, and the President of the Congress shall also be a member of this committee, *ex officio*.

4. It shall be the duty of the President to preside at all public meetings, and to perform the usual executive duties of the chair.

5. It shall be the duty of the Secretaries to give notice of all meetings, to record the proceedings, and to conduct any necessary correspondence, under the direction of the President.

6. It shall be the duty of the Treasurer to receive and disburse all monies collected by the Association, under the direction of the President, and to keep and render an accurate account of the same at each meeting.

7. It shall be the duty of the General Fruit Committee, to collect information on the subject of Fruit and Fruit Culture, and to report the same at every session of this Congress.

A. J. DOWNING,
J. W. KNEVELS,
S. B. PARSONS,
Committee.

The question being on the acceptance of the report and the adoption of the proposed By-Laws,

Mr. HOVEY moved that they be taken up for consideration section by section. This motion was carried without opposition.

The question being on adopting the first section—Mr. HANCOCK moved to strick out the provision that the Vice-President from each State shall be President of some Horticultural Society therein, and the motion was seconded by Dr. WENDELL.

Dr. BRINCKLE moved to refer the whole subject back to the committee, with instructions to report at the next session.

Mr. DOWNING said that one very important feature of the by-laws was that contemplating the appointment of a General Fruit Committee, to collect information on the subject of Pomology, and report at each session. Should the present motion prevail, there could be no such report next year. The committee was not strenuous about any particular by-law or phraseology, but he did think it exceedingly important that a Fruit Committee should be appointed by the present Congress, and provision made for regular organization.

Mr. HANCOCK and Dr. WENDELL both hoped that the report would not be re-committed, and Dr. BRINCKLE thereupon withdrew his motion.

The question was then put on Mr. HANCOCK's motion, which prevailed, and, as thus amended, the first section was adopted.

The second section was adopted as it stood in the report.

The third section coming up—Mr. HANCOCK inquired whether it was the understanding that each Society in every State should be represented in the General Fruit Committee?

Mr. DOWNING replied in the affirmative. The committee was to be composed of the chairmen of the Standing Fruit Committees of all Societies in all the States and Canadas, with a general chairman to be chosen by the Congress. As chairman of the former General Committee, he had experienced much embarrassment in regard to conducting the necessary correspondence, and the proposed mode was intended as a remedy for that difficulty.

Mr. UNDERHILL, of New-Jersey, said there might be a difficulty about this, for in New-Jersey, for example, there were five Fruit Committees—the chairmen of all of which, under this rule, would be members of the General Committee of the Congress.

Several gentlemen exclaimed—"the more, the better."

Mr. FOOTE, of Berkshire Co., Mass., asked whether all Societies, in each State, or only the several State Societies, were to be represented?

The PRESIDENT said every Horticultural and Pomological Society in each State.

The third section was then adopted without amendment.

The fourth and fifth sections were likewise acceded to without alteration.

The sixth section was amended, on motion of Mr. HANCOCK, by making it the Treasurer's duty to render an account "at each meeting"—and then adopted.

The seventh section was adopted without change.

The report in general was then accepted, and the By-Laws passed with the amendments above stated.

The CHAIR said that he ought before to have informed the Congress that important business had called the President, (Col. WILDER) away from the city. He had been obliged to return to Massachusetts, a step which he very much regretted, and which nothing could have induced him to take, except circumstances beyond his control, and duties of a peremptory nature. Col. WILDER had begged him (Mr. WALKER) to express to gentlemen of the Congress his regret at being compelled to leave them, his grateful sense of the honor they had done him, and the great pleasure it would have given him to remain during the whole session.

Mr. S. B. PARSONS thereupon moved that the thanks of the Congress be presented to the Hon. MARSHALL P. WILDER, the President of this body, for the very courteous, able, and impartial manner in which he has presided at this session.

This was voted unanimously.

Mr. DOWNING stated that he had still before him the report of the General Committee, comprising another portion of the list of fruits proposed for rejection, and several other fruits which it was proposed to recommend for general cultivation.

On motion, it was voted to take up the lists and pursue the same course in their consideration, that was adopted yesterday.

APPLES WHICH IT WAS PROPOSED TO REJECT.

Cadashca.—Objected to by Col. HODGE, of Buffalo, N. Y. It was only a second quality of fruit, but he was not prepared to reject it altogether. Also by Mr. BARRY of Rochester, N. Y. It was large and productive, very coarse, but still had some good qualities.

Blenheim Pippin.—Objected to by Mr. Hovey, of Boston, Mass.

American Pippin or *Grindstone*.—Objected to by Mr. HAYES, of Newark, N. J.

Scarlet Pearmain.—Objected to by Col. HODGE of Buffalo, N. Y., and Mr. ELLIOTT, of Cleveland, Ohio.

PEARS WHICH IT WAS PROPOSED TO REJECT.

Sugar Top.—Objected to by Mr. McINTOSH, of Cleveland, Ohio.

Sugar of Hoyerswerda.—Objected to by Mr. MANICE, of Long-Island, N. Y.

Princess of Orange.—Objected to by Col. HODGE of Buffalo, N. Y.

Hessel.—Objected to by Mr. SAUL, of Newburgh, N. Y., and Mr. McINTOSH, of Cleveland, Ohio.

Hericart.—Objected to by Messrs. HAYES, of Newark, N. Jersey, MANICE, of Long Island, N. Y., HOVEY, of Boston, Mass., and SAUL, of Newburgh, N. Y.

This completed the list of fruits which the committee proposed to submit for rejection. Thereupon

Mr. HANCOCK proposed to add to the list of rejected pears, the *Dumortier* and the *Passans de Portugal*. Both were objected to—the former by Mr. Hovey, of Boston, and the latter by Messrs. HOVEY and WALKER of Boston.

Mr. MILLER proposed to add *Prince's St. Germain*. Objected to by Messrs. McINTOSH, of Cleveland, Ohio; MONSON, of New Haven, and TERRY, of Hartford, Conn.; MANICE, of Long Island, N. Y.; HOVEY, of Boston, Mass., and LITTLE, of Bangor, Maine.

Mr. LITTLE then moved that the meeting proceed further to consider the list recommended by the committee as worthy of general cultivation, and the motion was sustained.

FRUITS WORTHY OF GENERAL CULTIVATION.

Mr. DOWNING said the committee intended to propose but one Cherry, and that was the *Belle Magnifique*. Mr. HOVEY said it had been known in Massachusetts from ten to twenty years; Mr. EL-

LIOTT, that it had been grown in Ohio from ten to twelve years, and Mr. BARRY that it had been cultivated in Western New-York for seven years. All three gentlemen concurred in recommending it. Col. HODGE agreed with them. It was a very pleasant sub-acid fruit.

The *Belle Magnifique* Cherry was adopted.

Of PEACHES, the committee recommended the *Late Admirable*. Mr. HOVEY was hardly prepared to recommend it. Mr. S. B. PARSONS said it was very good at Flushing, N. Y. Mr. DOWNING found that it ripened finely. Mr. HAMILTON said it was good in Orange Co., N. Y. Mr. HANCOCK had never had it good.

On motion, it was passed by for the present. [This was equivalent to a refusal to recommend its cultivation, for it was not subsequently called up for action.]

Mr. HANCOCK moved that, in considering the various fruits proposed for general cultivation, the same course be adopted as was followed in regard to rejected fruits; *i. e.*, that any one to which an objection might be raised, should be stricken from the list.

Mr. DOWNING was opposed to this motion, because after three or four of the very best fruits had been agreed upon, it would hardly be possible to find another so fine as not to meet with a single objection; an objection, it might be, arising from a local cause alone, or from some peculiar idea or particular experience on the part of a single cultivator.

Mr. HOVEY also objected to the motion. The rejected fruits in the list which had been passed by the Congress, were still in cultivation, and any one good objection to placing a fruit on that list, coming from a gentleman who found his account in continuing that particular fruit, was entitled to be rejected; so far, at least, as not to abolish the cultivation of that variety. But in adding to the catalogue of fruits worthy of general cultivation, more than one objection to any particular variety ought to be presented before there could be reasonable ground for excluding it. The difficulty which an individual might have experienced in respect to a particular variety which had succeeded with almost every body else, might be purely the result of fortuitous circumstances, and at any rate, ought not to operate to the exclusion of such fruit.

Professor MAPES, of New-Jersey, also spoke in opposition to the motion. If adopted, it would virtually put an end to all discussion on fruit.

Mr. DOWNING said that if there were any considerable objections to a fruit, it would not be pressed; but if it generally succeeded in most parts of the country, it was hardly right that it should be rejected on account of non-success in one particular locality.

Mr. UNDERHILL was in favor of taking the same course with these as with the rejected fruits—striking them from the list at any objection, and recording the name of the objector.

Mr. DOWNING said that in the world, when a man's character was so bad that nobody could say a word in his favor, it was best to throw over his acquaintance; but on the other hand, if he was generally respected, and only a few individuals assailed him, then no just individual would think of shunning him. It should be just so here.

Col. HODGE remarked that according to this last view we ought to go over again the whole list of fruits rejected yesterday.

Mr. HOVEY observed that where a majority of cultivators from different quarters approved of a fruit and recommended it to general attention, it ought not to be thrust aside because it did not prove excellent in some one particular locality. Its adaptation to our country generally was what ought to be looked at—not its partial success or failure in any one limited region.

Mr. HAYES said that now we were getting at the pith of the matter. If he could be satisfied as to the localities in which a fruit had proved successful, or had failed—that was what he wanted. He was afraid that many fruits were rejected yesterday which might come up first rate in some parts of the country.

Mr. HANCOCK professed himself satisfied with the view taken by Mr. HOVEY, and withdrew his motion.

The *Morrisania Pound Peach* was the next fruit proposed by the committee. Mr. HANCOCK said he had fruited it for three or four seasons, and had never found it good yet.

Mr. HAYES said it never was good with him.

Mr. MCINTOSH said that at Cleveland for several years it had ranked as very good. Mr. ELLIOTT pronounced it to be a good peach.

The question was put, and the *Morrisania Pound Peach* was rejected.

Mr. DOWNING had next to present a short list of the smaller fruits, no list having been given last year. The committee recommended as worthy of cultivation—

STRAWBERRIES.

Early Virginia.—Mr. McINTOSH granted that this was an early fruit, but it was so small, poor and worthless, that it was unworthy of general cultivation.

Mr. HOVEY said that at Boston this was the same variety as the Large Early Scarlet. It was a good sized strawberry. He had cultivated it for twenty years and found it a very good berry on a light soil. It came very early and thus avoided drought—but gardeners were gradually discarding it, except for a few days at the very first of the season, when high prices could be obtained.

Mr. DOWNING fancied that the two fruits were very distinct. The Early Virginia was small, but the Early Scarlet, in New-York, was a very fine, large fruit.

Mr. BARRY said that the Early Scarlet was cultivated greatly in Western New-York, and was a very superior fruit. It had a much rounder berry than the Early Virginia, and was only a few days later.

Mr. HANCOCK stated the Early Virginia and the Early Scarlet to be very distinct. The former was known as the Hudson.

Mr. HOVEY said the Hudson was too acid a berry for the Boston market, and it was a poor fruit.

Mr. FRENCH said that some very good judges in his region would give up any strawberry as soon as the early Virginia. One neighbor of his found it the best he had all last season. He was not so successful with it himself, but he thought it a hardy berry and one that could be relied upon.

Mr. BARRY said it was much inferior to the large Early Scarlet, and from the very fact that being thus inferior, and only two or three days earlier, it was unworthy of cultivation.

Mr. HANCOCK said that in his region the Early Scarlet had taken the place of the Early Virginia, and that both ripened at the same time there.

Mr. DOWNING said that the committee decidedly preferred the Early Scarlet to the Early Virginia.

Mr. McINTOSH thought the Early Virginia entirely worthless; so much so, that he had rooted it all up in his grounds and replaced it with the Early Scarlet.

On motion of Mr. SAUL, it was passed by (equivalent to being rejected.)

Hovey's Seedling—Mr. McINTOSH declared this to be the very best Strawberry he ever had in his grounds. Without any further remark it was adopted unanimously.

Large Early Scarlet.—Col. HODGE had fruited it for years with great success, and in the course of a tour at the west, he found that in the neighborhood of Chicago, it was pronounced one of the best varieties. Mr. HOVEY would vote for it with pleasure, believing it to be the same as that cultivated in Massachusetts as the Early Virginia.

It was adopted.

Hudson.—Mr. HOVEY was quite willing to believe from what had already been said, that this might be a good fruit in New-York and New-Jersey, but east of New-York it was so small and acid as not to be worthy of cultivation at all.

Mr. S. B. PARSONS was very much of the same opinion. There were many acid berries far superior to the Hudson, as for instance Jenny's Seedling, which was a fine fruit.

Mr. BARRY thought it unadvisable to put the Hudson on the list. In his region it had been tried, but generally abandoned. While there were so many other preferable varieties, this ought not to go upon a list of fine fruits.

The *Hudson* Strawberry was rejected.

Burr's New Pine.—Mr. MANICE considered it premature to place this on the list. No doubt it was a good fruit but it was not yet sufficiently well known. Dr. WENDELL had tried it at Albany for two years, and thought that it would hereafter take its place among the first, but for the present he would rather have it withdrawn. Mr. HOVEY said it promised well, but he objected to putting it on the list for the same reason given by the gentlemen who preceded him, it had not been known long enough.

Mr. WALKER observed that after testing thirty-six varieties he was of opinion that Burr's New Pine was the best of them all, and that it had no superior in flavor except the Swainstone Seedling. Mr. ELLIOTT said it had never been sufficiently tested in Ohio to warrant its recommendation for general culture.

Mr. BARRY said, it originated at Columbus, Ohio, and the attention of the Horticultural Society of that state was called to it by Mr. BURR. The next year the committee made an elaborate report, giving this the preference over all other strawberries. This had called his own attention to it, and since then, at Rochester, he found that it

fully sustained the high character assigned to it. It was one of the best he ever saw in flavor, and at the same time it bore well.

Mr. DOWNING remarked that the committee felt justified in recommending it, since it did not require near so long a time to test a strawberry as a larger fruit.

Col. HODGE said, that we ought to move with caution, for the community had been more humbugged with regard to strawberries than any other fruit. He had seen this variety one season and favored it, but he considered it entirely premature for this Congress to place it on the list for general cultivation.

Mr. ELLIOTT said, that four years ago there was only one plant of this variety in existence, and all that had been since obtained, made but a very small quantity. They had been watched with great care, with a view to dissemination, but sufficient opportunity had not been had for testing the variety in a thorough manner. Mr. Walker said that, according to his experience, a strawberry could be tested as well in two years as a pear in five.

Mr. HOVEY moved to pass it by. Mr. LINES, of New Haven, hoped it would not be passed by, since nobody said anything about it but in its praise. If it had been tried and proved bad, that would be another thing. Mr. HOVEY rejoined that other things were important as well as its flavor. This fruit had only been known in Boston for one year, and he himself had procured a plant from Mr. BARRY. From that plant he got perhaps a dozen berries. What could be judged of its bearing properties from that? He wanted to have its qualities in this respect tested on a much larger scale.

Mr. BARRY agreed that it was important to know about its bearing qualities when extensively cultivated. Mr. WARNER's bed of Burr's New Pine, in Rochester, was half as large as this room, (perhaps 1,200 square feet) and from it he had obtained immense quantities of fruit. Mr. HANCOCK said that Mr. BURR had come out with five or six varieties as being all of extraordinary excellence, but it seemed that he had now come down to this one. For that very reason, he (Mr. H.) should be shy of this; and rumor said that it had not proved good in Ohio, on further cultivation. Mr. MCINTOSH said that Mr. HANCOCK must be mistaken, for Burr's Old Seedling and Ohio Mammoth were among the best varieties they had in Ohio. Mr. HANCOCK rejoined, that he had his information from Mr. BURR him-

self. Mr. BARRY said that those varieties had not gone out of existence in his quarter of New-York.

Mr. FRENCH, from what little he had seen of it, was disposed to think it was a fruit which every one in the world would wish to have. Mr. S. B. PARSONS thought there was great force in the remark of Mr. LINES. Dr. WENDELL would prefer that the committee should withdraw the fruit, rather than that the meeting should vote to pass it by. Should the latter course be taken, some persons might suppose that we considered it unworthy of cultivation, while in fact it was one of our very best varieties. He had no doubt that by another year the Congress would be fully prepared to recommend it without hesitation.

Mr. DOWNING thereupon withdrew the fruit in question from further consideration for the present.

Boston Pine.—Mr. HANCOCK had had in the course of three or four years only one crop from this variety. It was a good fruit but a shy bearer.

Mr. PARDEE had found it at New-Haven a strong and excellent bearer, and the fruit of delicious flavor. Mr. TERRY said it had succeeded admirably at Hartford with several gentlemen who tried it on different soils. It was esteemed very highly for its mild and agreeable flavor. It was better than Hovey's Seedling, which grew near and was fertilised by it.

Mr. MANICE said it grew very well in hills, but not so well in beds; in hills it was a great bearer—better than Hovey's. Mr. MILLER said it was a very pleasant and productive fruit, with a large, fine appearing berry. It was fully equal to Hovey's, and inferior perhaps to the Black Prince alone.

Mr. FRENCH had seen it very fine indeed at Hovey's garden and elsewhere. In 1848 he tried the experiment of cultivating a square yard each with the Boston Pine, the Willey and the Jenney. They were all picked by a careful hand, and the result was—Boston Pine, $1\frac{1}{2}$ pints; Willey, 1 quart, 3 gills; Jenney, 1 quart, 1 gill. Mr. LINES said that after he planted his out, for the first year the bearing was small; in the second it improved; and in the third it was enormous. It was better to grow the fruit in hills.

Mr. WALKER said that for the first year or two he had not been very favorably impressed by the Boston Pine, and had not yet substituted it for the Early Virginia. But what he had seen of it

the present year had greatly raised it in his estimation. Grown in hills, he had seen very large crops and fine fruit. By the Massachusetts Horticultural Society, this season, the first and third prizes were awarded to the Boston Pine.

Dr. MONSON had cultivated Hovey's and the Methven, and had been perfectly satisfied with them, till he became acquainted with the Boston Pine. He had never seen so prolific a bed as that of this variety belonging to Mr. TERRY. He at once engaged plants of him and dug in one half of his Hovey's Seedling to make room for planting them. This variety was superior in bearing qualities to any that he had seen.

Mr. HOVEY remarked that he had preferred to hear what others had to say of this strawberry, rather than to speak of it himself. It had been exceedingly gratifying to him to hear so many commendations of his two strawberries—the Seedling and the Boston Pine. Gentlemen were present from the remotest parts of the country, and they unanimously agreed upon their excellence. The Boston Pine was raised at the same time, and from the same lot of seed, as the Hovey Seedling, in 1834. But after selecting the latter variety, so many others remained of promising quality—and the quantity of land at command being rather limited—that it took some time to give them all, successively, a trial—and it was not until 1844 or '45 that the Boston Pine was first offered to the public. That was its origin.

Mr. H. said he would embrace this opportunity to say a few words in regard to the cultivation of the Boston Pine. One gentleman had remarked that he cultivated his vines in hills; another, his in beds; others, theirs in rows—and all had succeeded equally well. But as one gentleman had said that he did not exactly understand what was meant by cultivating in hills, he would briefly explain.

Gentlemen were probably aware that Hovey's Seedling, the Early Virginia, and other varieties, rarely produced more than three or four trusses of fruit to each root, and then, when grown thickly in beds, produced very good crops. This, however, was not the case with the Boston Pine, generally—the constitutional tendency of the plant being to produce ten or twelve trusses of fruit to each root. One hundred and fifty berries had been counted on a single plant, as the PRESIDENT could testify. The consequence was that when the vines occupied all the ground, there was a deficiency of nourishment, and the berries did not fill up. Hence had arisen many failures in the

cultivation of this variety. It required more room than other strawberries, and when grown in rows, with a space of a foot or more between, and that space well manured, the crop was one of the most abundant of all kinds. Cultivation in hills, so termed, was where one or more plants were set out, two or more feet apart each way, the runners kept clipped off, and the ground tilled with the hoe, or, when extensively grown, with the cultivator or plough. Raised in this mode, or in rows, he was satisfied the Boston Pine would prove, as indeed it had already done, all that he had ever recommended it to be, and would meet the expectations of every cultivator.

The question was then put, and the *Boston Pine* was adopted.

Mr. S. B. PARSONS moved to add *Jenney's Seedling* to the list. He had found it an abundant bearer, and two or three times as juicy as Hovey's. It was rather acid, to be sure, but with a little sugar was exceedingly agreeable. In all respects it was first rate.

Mr. McINTOSH concurred in all points with Mr. PARSONS. *Jenney's Seedling* was a great bearer, a fine, hardy fruit, of excellent flavor, and well worthy of being recommended. Mr. FRENCH said it was hardy, and an abundant bearer. Any one who would try it would have no reason to feel disappointed at the result. Mr. PARDEE had tried it for one season, and was much pleased with it. Mr. HANCOCK had grown it four years, and as to crops, he found there was no comparison between Hovey's and *Jenney's Seedlings*. The latter, however, was more acid than the other.

After some little time, and at the request of several gentlemen, Mr. PARSONS withdrew his motion.

Mr. HAMILTON immediately moved that *Jenney's Seedling* and *Burr's New Pine*, be placed on the list of fruits which give promise of being worthy to be added to the list for general cultivation.

This motion prevailed.

Mr. SAUL proposed to add to the list of strawberries the *Black Prince*. He had known it for ten years, and esteemed it the highest flavored of all. It was a very good bearer, remarkably hardy, and endured the winter much better than most other varieties. It had as many desirable qualities as any he knew of.

Mr. DOWNING had great pleasure in bearing testimony to the good qualities of this strawberry. He preferred its flavor to that of any other variety. It was, as Mr. SAUL had said, hardy and an excellent

bearer, and the berries were large and handsome. He could safely recommend it.

Mr. LINES had procured it on Mr. DOWNING's recommendation, and, like him, had found it an abundant bearer, with a handsome berry; but it was the most insipid fruit he ever tasted. He was surprised that so handsome a berry should be so tasteless. The fruit would hardly bear gathering, it melted so easily in the fingers.

Col. HODGE had fruited it for three or four years. Its flavor was not so good and the crop not so abundant with him as other gentlemen seemed to have found them.

Mr. HAMILTON said that with him it was one of the very best, and certainly had the highest flavor of any.

Mr. MANICE had it from Mr. DOWNING, and found it the poorest strawberry he had ever cultivated.

Mr. MILLER considered it at the head of all in point of flavor.

Mr. BATTEY, of Keeseville, N. Y., had been much disappointed in the quality of this fruit. It was worthless, dry and insipid, and with him the plant was a poor bearer.

Mr. S. B. PARSONS last year thought it first rate, but this year it was poor with him.

Mr. BARRY said it was a beautifully colored berry, and one of the highest flavor, but it was a small bearer. For amateurs it was an indispensable variety, but it would not do as a market fruit.

Mr. C. DOWNING regarded it as the highest flavored strawberry he ever tasted, and one of the best varieties. He grew it on a light, sandy loam.

Mr. HANCOCK had tried it four or five years, but it had never succeeded with him.

Mr. SAUL withdrew his motion.

RASPBERRIES.

Red Antwerp.—Mr. MCINTOSH inquired if it was hardy? He thought the contrary, and at any rate it had not proved so with him. It needed covering in the winter, and could not be relied on.

Mr. HOVEY said that no raspberry we yet had could stand the winter without covering.

Mr. BATTEY said that with him it had fully answered, and was equally hardy with any variety of red.

Mr. C. DOWNING considered it one of the best for marketing, and

it was cultivated very largely for that purpose. One of his neighbors last year sold \$300 worth from about one-third of an acre, and this year, from three acres of this fruit he realized over \$1500. It was one of the very hardiest of raspberries. It would not stand the winter without being covered.

Mr. BARRETT, of Ulster Co., N. Y., said that in productiveness it was unsurpassed by any. It bore long in succession, and in ordinary seasons could be gathered for five weeks. As a market fruit, it was better than any other variety, bearing carriage very well, and not being exceeded by any in flavor. It sold in New-York for about twenty-two cents a quart, and from three quarters of an acre he had realized \$330, at an average of ten cents per basket. There was a cultivator in his neighborhood who obtained \$1500 worth from three acres, and that, in a very unfavorable season of only three weeks instead of five. To insure a crop it required to be protected during the winter by drawing down the ends, and covering them with earth. About three acres would afford as many raspberries as could well be cared for. He had known the ends to live in severe winters, although uncovered, but that was in very favorable situations.

Mr. HANCOCK remarked that so far as he knew, this variety was not known in England. He had tried three or four times to get it from the nurseries about London, but could not.

Mr. SAUL said he had known the Red Antwerp in the west of England ever since he was half the height of a Raspberry cane. It was precisely the same as this under discussion.

Mr. HAYES said there was no use in discussing the question of hardiness; the Red Antwerp did require protection in winter, and no imported raspberry could do without it.

Mr. C. DOWNING said that very often, fine crops were obtained from unprotected plants, but they could not be relied on. All large and fine imported varieties did need protection.

Mr. BATTEY said he had lost his apples with the thermometer at 30 deg. below zero, but not a cane of his raspberry plants.

Mr. ALLEN of Oswego, N. Y., said that the Red Antwerp was cultivated without any protection whatever in his locality.

Prof. MAPES said it was not extreme cold that destroyed the raspberry, but frequent and great changes of temperature.

Dr. MONSON did not complain that the Red Antwerp was not hardy, but it did not increase well. He could not get a plantation out of it.

Mr. BARRETT replied that last year he had eight rods of ground, pretty thickly set with the Red Antwerp, from which he should this season have from 6 to 8,000 plants. It was a common careless custom to leave them unprotected through the winter, but it was an unsafe practice and in three seasons out of five would cause the loss of the crop.

The question was then put and the *Red Antwerp* raspberry adopted.

Fastolff.—Mr. HAYES said of this, that we could not gather the fruit from the plant as well as from the Antwerp or the Franconia. It did not come off the core so easily. Mr. HOVEY said this variety increased with him faster than any other. It was an abundant bearer and the fruit was very fine.

The *Fastolff* raspberry was adopted.

Knevett's Giant.—Mr. ELLIOTT moved that this be placed in the list of fruits promising well. Mr. HOVEY hoped that would be the disposition made of it. Mr. WALKER said it had been grown in the neighborhood of Boston five years, and Mr. NEWELL of Dorchester told him it succeeded without protection. Mr. HANCOCK said that so far as his experience went, it was a fine fruit but a shy bearer.

Mr. ELLIOTT's motion prevailed, and the *Knevett's Giant* Raspberry was placed on the list of fruits that promise well.

Yellow Antwerp.—Mr. S. B. PARSONS said it was a poor bearer with him, but a good grower. Mr. BARRETT said it was a poor bearer, and the fruit was poor; it was crumbling and unfit for market. Mr. HANCOCK said that unless protected it would be killed, but when protected it bore a good crop and of a high flavor.

The *Yellow Antwerp* Raspberry was adopted.

Mr. S. B. PARSONS proposed to add to the list the common *English Red*, a variety which he prized very much.

Mr. TERRY said we had four native varieties, the common American Red, White, and Black, and the Purple. This last was a very fine fruit, bearing large crops for a long period and was superior in flavor to the English Red.

Mr. HAMILTON supposed Mr. PARSONS meant the common Red, which grew up some six or eight feet and then bent over. Mr. PARSONS presumed the variety was very generally known. It was a free growing plant, with a bluish stock, the berry round and rather flat, soft as the Antwerp, and preferable in flavor. It was perfectly hardy and was never killed down.

Mr. McINTOSH said he commenced growing it at one time for market and planted an acre of ground with it at Cleveland. For three years it was the only variety he could rely on for a crop.

Mr. HAMILTON said he had known it for thirty years. It might be seen in every farmer's garden; it was a universal trespasser, growing all over fences and almost everywhere else. It was a very prolific bearer and very hardy, and his wife had often expressed her regret that he had extirpated it, on account of its yielding so large a crop. He thought Mr. PARSONS referred to this same variety.

Mr. TERRY knew the fruit thirty years ago, and if it was a foreign variety it had become perfectly naturalized long since. The habits of the plant were, as Mr. HAMILTON had described, growing up some six feet or more, and then bending down towards the ground. Mr. REID also thought it a native variety.

Mr. PARSONS withdrew his motion.

Mr. HAMILTON moved to add the *Franconia* to the list, and this was voted without opposition or debate.

FOREIGN GRAPES, FOR CULTURE UNDER GLASS.

The seven varieties which were adopted without debate, will be found in the general list of recommended fruits.

Chasselas Musqué.—Mr. HOVEY said this was an old grape, known some thirty or forty years, and one of the most delicious of all. But there was one fault about it, it would crack. He had three vines, from which he had this season forty pounds. It was a very fine bearer, and if cultivators kept the scissors at work amongst the cracked grapes in the bunches, they would obtain a fine fruit.

Mr. S. B. PARSONS thought it inferior to the Golden Chasselas. Mr. GABRIEL inquired whether the committee intended that fire-heat should be applied or not.

Mr. Downing answered, that it would do either way, under glass it did not crack with him. Mr. HOVEY said the English cultivators recommended it.

The question was put, and there being but one majority for its adoption, Mr. DOWNING withdrew it.

Mr. MANICE moved to add the *Syrian*. It was a very fine fruit. Mr. HANCOCK considered the Syrian only a second-rate grape, though he had known its clusters attain the weight of eight pounds and a half in his neighborhood. Mr. HOVEY said that in cold houses—

though it was very good there—some might be disappointed in this grape ; but if fire-heat were applied and the fruit suffered to hang till November or December, it would prove first rate. In England clusters had been raised weighing fourteen pounds ; in Boston from six to seven ; and in New Jersey, as has just been stated, eight and a half.

The motion to add the *Syrian* was lost : five yeas, seven nays.

NATIVE GRAPES—OPEN CULTURE.

The *Isabella* and the *Catawba* were adopted unanimously.

Mr. FRENCH proposed to add the *Diana*, which, on motion of Mr. DOWNING, was placed on the list of fruits promising well. Mr. HOVEY remarked that in three years or so, the *Diana* would be at the very head of native grapes.

Mr. UNDERHILL proposed to add the *Elsinborough* (often incorrectly spelled *Elsinburg*, as he said.) Mr. DOWNING was opposed to this. The grape was small, with large seeds, and the Congress was pledged to recommend only the best fruits. Dr. MONSON said this fruit was peculiarly liable to be carried off by the birds.

Mr. HANCOCK said it was true this was a small grape, but it was very fine, in his locality, finer than the *Catawba*. Mr. CLEVELAND of New-Jersey said, if well cultivated, it yielded a large crop of good fruit. Many of his neighbors esteemed it more highly than the *Isabella* or *Catawba*, but he ranked it below them.

Mr. HOVEY observed that we ought to be very cautious in adding to the list, for cultivators had a large number of seedlings coming up every season, and we shortly should have something very superior. The production of the *Diana* grape proved this, for that was but a chance shoot from the *Catawba*. He hoped we should not adopt the *Elsinborough*.

The motion was put and rejected.

Mr. S. B. PARSONS then moved to add to the list for culture under glass, the *Zinfidel*. It was a well-known hot-house grape, but succeeded perfectly well in the open air.

Mr. DOWNING was sceptical as to this point. Dr. MONSON said there was no difficulty with it out of doors ; it was better than most in the open air, and not apt to mildew. He had cultivated it for ten years, and knew but one season when it did not ripen well, and then the *Isabella* did not come anywhere near it in point of ripeness.

Mr. HOVEY said it was a very fine fruit. He saw it first at the

place of the late SAMUEL G. PERKINS, of Brookline, Mass., before it had been put in the catalogues. Mr. PERKINS gave him cuttings from his vines, from which had proceeded the larger portion of those now cultivated. It was a grape which ought to be in every collection under glass. It was of dark color, with beautiful bloom, but not so large in size as the Hamburgh. Mr. GABRIEL said it was a very free bearer, with large berries of fine flavor, and succeeded well.

The motion to add the Zinfindel was lost.

CURRENTS

The *Red Dutch*, *Black Nuples*, *White Dutch* and *May's Victoria*, were all adopted without opposition or remark.

Mr. BARRY moved to add the *White Grape*. It was larger than the *White Dutch*, and a fine bearer. Mr. HOVEY had supposed the two to be identical. Mr. BARRY said the bushes were so different that any one could tell them apart. From actual experience, he knew the *White Grape* to be a distinct variety.

Mr. S. B. PARSONS said that River's *White Grape* was fully equal in size to the *White Dutch*, and far superior in flavor. Mr. HANCOCK, after long culture, could not see any difference between them. Mr. BARRY very well knew the old *White Currant* and the *White Dutch*. The former grew upright, and had not that twisting of the branches which was seen in the other. Mr. REID thought them distinct varieties; the *White Dutch* was rather the stronger grower.

The question was taken, and the *White Grape* currant added to the list.

On motion of Mr. SAUL, the Congress then adjourned till half past three o'clock in the afternoon.

AFTERNOON SESSION.

The Congress came to order at 4 o'clock, the PRESIDENT *pro tem.* in the chair.

Mr. MCINTOSH moved the appointment of a committee on Seedling Fruits presented for examination the present session, with instructions to attend to the duty at once.

The motion having been adopted, the CHAIR appointed Messrs. BRINCKLE, BARRY, C. DOWNING, HOVEY and MANNING, to constitute the committee

Mr. SAUL, from the committee charged with preparing a list of the varieties of fruits offered for examination, submitted the following report:

The committee appointed to collect lists of the different collections of fruits presented for exhibition to this Congress of fruit-growers, and of the contributors of the same, would submit the following as their report.

A. SAUL,	} <i>Com'tee.</i>
S. H. COLTON,	
WM. REID.	

There are presented, from Samuel Walker, Roxbury, Mass.,
Pears, 31 varieties.

Jonathan Battey, Keeseville, Essex county, N. Y.,
Apples 14 varieties,
Pears, 3 do

Parsons & Co., Flushing, Long Island,
Pears, 43 varieties,
Grapes, 5 do hothouse,
Apples, 28 do
Peaches, 11 do

G. R. Garretson, Flushing, Long Island,
Pears, 5 varieties,
Grapes, 1 variety.

James Scott, Flushing, Long Island,
Pears, 2 varieties.

Asahel Foote, Williamstown, Mass.,
Plums, 10 varieties,
Pears, 5 varieties,
Apples, 2 do

S. L. Goodale, Saco, Maine,
Pears, 18 varieties,
Grapes, 2 do
Plums, 2 do
Apples, 1 variety.

Rufus Nichols, Saco, Maine,
Pears, 1 variety.

Daniel Cleaves, Saco, Maine,
Pears, 5 varieties.

- P. S. Van Rensselaer, Clinton Point, Dutchess co., N. Y.,
Grapes, 14 varieties, under glass.
- Thomas Hancock, Burlington, New Jersey,
Apples, 31 varieties,
Pears, 18 do
Peaches, 3 do
- Wilson, Thorburn & Teller, Albany, N. Y.,
Apples, 20 varieties,
Pears, 20 do
Plums, 15 do
Peaches, 4 do
- Walter Goodale, South Orrington, Maine,
Apples, 10 varieties.
- Henry Little, Bangor, Maine,
Apples, 3 varieties,
Pears, 1 variety.
- Marshall P. Wilder, Boston, Mass.,
Pears, 33 varieties.
- G. B. Deacons, Burlington, New Jersey,
Apples, 28 varieties.
- Charles Hamilton, Canterbury, Orange county, N. Y.
Apples, 15 varieties,
Plums, 11 do
Pears, 3 do
Peaches, 3 do
- B. Hodge, Buffalo, New-York,
Pears, 30 varieties,
Apples, 29 do
- William L. Ferris, Westchester, New-York,
Pears, 6 varieties,
- M. C. Morgan, Jersey City, New Jersey,
Nectarines, 1 variety, 4 baskets.
- John Eltringham, Jersey City, New Jersey,
Quinces, 1 variety.
- W. T. & E. Smith, Geneva, New-York,
Pears, 7 varieties, 2 new seedlings.
- ohn Parker, Moorestown, New Jersey,
Apples, 20 varieties.

- Martin Slocum, Bennington county, Vermont,
Apples, 10 varieties.
- Thomas Harvey, Jennersville, Chester county, Penn.,
Apples, 12 varieties.
- James H. Watts, Rochester, New-York,
Apples, 2 varieties.
- Morris & Stokes, Westchester, Pennsylvania,
Apples, 7 varieties,
Peaches, 3 do
- A. S. Monson, New Haven, Connecticut,
Pears, 8 varieties,
Grapes, 4 do 2 under glass, 2 in open air.
Apples, 7 do
Osage Orange, a fruit of.
- Robert Buist, Philadelphia, Pennsylvania,
Grapes, 18 varieties.
- Hovey & Co., Boston, Massachusetts,
Pears, 32 varieties.
- J. C. Hastings, Clinton, Oneida county, New-York,
Plums, 1 variety, a seedling.
- Edmond Jones, Philadelphia, Pennsylvania,
Iron Pear.
- Mr. Green, Germantown, Pennsylvania,
Chancellor pear.
- Mrs. J. B. Smith, Holland Green,
Seckel Pear, from the original tree.
- David Miller, Jr., Carlisle, Penn.
Apples, 40 varieties.
Grapes, 6 do
Peaches, 5 varieties,
Plums, 5 do
- H. W. S. Cleaveland, Burlington, N. J.
Pears, 7 varieties,
Grapes, 1 variety.
- George Gabriel, New-Haven, Conn.
Pears, 5 varieties,
Grapes, 3 do under glass, without heat.
- Charles Downing, Newburgh, N. Y.
Pears, 1 variety—a splendid specimen of Duchesse
d'Angoulême.

A. McIntosh, Cleveland, Ohio.

Pears, 11 varieties,

Apples, 2 do

S. A. Barret & Co., Milton, Ulster Co., N. Y.

Pears, 8 varieties,

Plums, 4 do

Edward Hallock, Milton, Ulster Co., N. Y.

Peaches, 1 variety,

Charles Dubois, Fishkill Landing, N. Y.

Apples, 9 varieties,

Peaches, 1 variety,

Plums, 1 do

William Reid, Elizabethtown, N. J.

Pears, 12 varieties,

John C. Dodge, Dodgeville, Mass.

Grapes, 1 variety—4 dishes Black Hamburg, without heat.

William G. Verplanck, Geneva, N. Y.

Pears, 8 varieties—2 seedlings,

Apples, 4 do

Quinces, 1 variety.

Dr. Ash, Philadelphia, Penn.

Ashland Pear, believed to be White Doyenné.

J. De Wolfe, Frogs Neck, Westchester Co., N. Y.

Pears, 8 varieties.

J. J. Walter, New-Haven, Conn.

Apples, 4 varieties,

Pears, 1 variety.

R. Mattison and Brothers, North Bennington, Vt.

Apples, 13 varieties—8 seedlings,

Pears, 2 do

Plums, 2 do

Grapes, 1 variety—seedling.

J. W. P. Allen, Oswego, N. Y.

Pears, 45 varieties,

Apples, 37 do

On motion, the reading of this report at large was dispensed with, and it was referred to the Secretaries with directions to enter it on the records and publish it amongst the proceedings of the Congress.

Mr. ELLIOTT offered the following resolution :

Resolved, That all Pomologists throughout the United States and the Canadas be invited to forward to Mr A. J. DOWNING, of Newburgh, N. Y., at any or various times during the time elapsing from the adjournment of this Congress, and two weeks previous to the reassembling at Cincinnati, communications respecting varieties of fruits and fruit trees, shrubs or vines, and of diseases appertaining thereto. Such communications to be collated by Mr. DOWNING, and presented to the next Congress at its sitting in 1850. All such communications or packages to be pre-paid.

Dr. KENNICOTT, of Illinois, seconded the resolution, remarking that unless something like it were adopted, many eminent Pomologists would be debarred from making representations and communicating valuable knowledge in their possession.

A slight discussion ensued, and then the resolution was adopted nearly unanimously. The last clause, concerning the pre-payment of packages sent to Mr. DOWNING, was suggested by Mr. SAUL, and accepted by Mr. ELLIOTT.

The meeting next resumed the consideration of the Fruit Committee's report.

Mr. DOWNING said he would submit the remainder of the list of apples recommended for approval, as worthy of general cultivation. They were principally such fruits as were recommended by the Pennsylvania Horticultural Societies.

White Seek-no-further.—Adopted without opposition.

Lady Apple.—Mr. FRENCH said he procured it from the late Mr. MANNING, and found it to be among his hardiest trees. Mr. R. B. PARSONS had tried it four or five seasons, but had got no fruit. Col. HODGE thought one tree of this variety would be quite sufficient for any one. Mr. MCINTOSH pronounced it a very good apple. The tree was healthy, and in his locality it ranked quite as high as *very good*.

Mr. SAUL said that in Dutchess county there were some very fine trees of this variety, and the fruit commanded \$5 per barrel in the New-York market, when ordinary kinds would only bring from ten to twelve shillings. It was worthy of cultivation. Mr. REID considered it valuable only as an ornamental tree; as to the quality of the fruit there were many others far superior. Mr. ALLEN said the fruit was always fair, and the tree a good annual bearer.

MR. HANCOCK had never known it to be unhealthy. The fruit was of rather small size, but very good, and the tree was healthy and a great producer. In his locality, taking growth, quality, &c., all together, it was regarded as a very desirable variety. MR. HAMILTON had seen a great many trees of this kind in Dutchess and Orange counties, and no other variety there afforded nearly so fine a crop. He knew of a gentleman who had purchased all he could get at twenty shillings a barrel on the trees, finding his own barrels, and he made quite a handsome speculation out of the bargain. He considered it a fine fruit—a fair, straight, strong tree. It was not only a very beautiful apple, and very valuable for the market, but it was an apple of first rate quality.

The *Lady Apple* was adopted.

Wood's Greening Apple.—MR. HANCOCK considered it very good, but thought it was not generally known. MR. ELLIOTT regarded it as most excellent, and said it was esteemed very much in Ohio. It ranked there before any Pippin.

MR. DOWNING withdrew it, on the ground that it did not appear to be sufficiently well known as yet.

Red Astrachan.—Adopted without debate.

Winesap.—MR. COMSTOCK, of Dutchess Co., N. Y., did not esteem this apple—it was small, and he thought it would be a damage to the public if the Congress should recommend it, and it should be generally introduced. MR. HANCOCK said it was an excellent table and winter apple, and made good cider. It lasted from the 1st of March to the 15th of May. It was better than the Pippin, except in regard to flavor, and was not far behind in that respect. MR. ELLIOTT said it was good in Ohio.

The *Winesap Apple* was adopted.

Wine Apple.—MR. COMSTOCK said it was only third rate in Dutchess County. MR. HANCOCK remarked that it was a very good apple in his region of country, and a desirable variety to have.

It was adopted.

Autumn Pearmain (Herefordshire).—Adopted without discussion.

Red Cheek, or Monmouth Pippin.—MR. HANCOCK said this apple originated at Monmouth. It was a good fruit and of large size—but it was not sufficiently known to warrant its adoption as yet. He wished it to be withdrawn. MR. HAMILTON was satisfied there was much confusion in regard to this apple.

Mr. DOWNING accordingly withdrew it.

Mr. SAUL proposed to add the *Vandervere*. From November or December till March or April, there was no better apple than this in his section of the country. It was of fair, handsome growth, uniformly of good quality—and was universally cultivated in Ulster, Dutchess, and all the other river counties. Mr. DOWNING willingly accepted the proposal, and would strongly recommend the fruit.

Mr. LITTLE said he had carried it to Bangor twenty years ago and there it had done well ever since. Mr. MILLER said that if it was like what he had obtained under this name, it was a worthless fruit. Mr. BATTEY observed that it had thriven all along the region of Lake Champlain, and was there esteemed as one of the best varieties. Mr. HAMILTON stated that it throve well with him. It was a handsome, healthy, long-lived, thrifty tree, and the fruit was among the best.

The *Vandervere* Apple was adopted and placed on the list.

Mr. BUIST then moved that the *Sheepnose* be added to the list. It was a fruit of very high quality

Mr. MANNING observed that the Golden Russet which he had received from Mr. HANCOCK, was identical with the Sheepnose or Bullock's Pippin, and totally distinct from the Golden Russet of New-England. This last was a little flatter than the other, and free from the spots which disfigured the Sheepnose. It bore in clusters, and there was no fairer fruit. Bullock's Pippin, in New-England, was worthless. Mr. BUIST said it was not the general character of the Sheepnose to be spotted—it ordinarily was fair, smooth and very good.

Mr. HOVEY said his experience was quite different from that of Mr. MANNING. He had never seen the Sheepnose spotted to any degree in the four or five years which he had known it. Last year he examined specimens grown at Plymouth, and he never saw fairer or better fruit—it had no spots whatever. This apple had very tender flesh, and was of very fine flavor—it might be a little dry if kept too long. He saw no objection to placing it on the list. Mr. COMSTOCK said that when grafted on old trees it grew very rapidly, and would bear the second year.

Mr. HANCOCK remarked that, in his neighborhood, it was a universal favorite. The tree was upright, and bore well. The fruit was of splendid flavor; and if ever specked, that must be owing to an unfavorable situation. Col. HODGE said that in western New-York,

the American golden russet was much cultivated, and it was not the same as this. This was very good, but the russet was better. Mr. MILLER said that the American golden russet was one of the earliest and pleasantest apples they had in his region.

Mr. WALKER stated that the committee of the Massachusetts Horticultural Society, of which he was one, rejected this apple unanimously. He believed there had never been a cultivator near Boston, except Mr. HOVEY, who agreed that it was the fruit which gentlemen here pronounced it to be. In New-England, it was universally pronounced unfit for cultivation.

The question was taken, and it was voted to put the *Sheepnose* apple or *Bullock's pippin* on the list.

Swaar apple.—Mr. DOWNING, by the request of several gentlemen, submitted this variety, and it was unanimously adopted.

Mr. FOOTE moved to add the *Dominie*. It was an apple extensively known and highly esteemed in western Massachusetts, was of high flavor, and a great bearer.

The motion was rejected.

NECTARINES.

Elruge and the *Early Violet* were adopted without objection.

Hunt's Tawney.—Mr. HAMILTON said it was a very poor bearer with him, and was very liable to mildew. Mr. MCINTOSH said it grew fairly at Cleveland, but was subject to mildew there also. The tree was good, but the fruit good for nothing.

Mr. DOWNING withdrew it.

Mr. HANCOCK moved to add the *Downton*. Mr. BUIST said it grew to the size of a good, large peach, was of a reddish color, and he considered it the very best of nectarines. Mr. DOWNING said it was the finest and best he had ever fruited or tasted.

The *Downton* Nectarine was placed on the list.

APRICOTS.

The *Large Early*, *Breda*, and *Moorpark* were all adopted unanimously. Mr. DOWNING said of the first, that it was the highest flavored and most beautiful he had ever seen. Mr. MCINTOSH remarked of the *Breda*, that, though small in size, it was one of the earliest and best. And Col. HODGE stated that he had gathered more fruit from it than from all others combined.

Mr. HAMILTON proposed to add the *Peach* Apricot. He had fruited this variety for several years, and found it more productive, and fairer, than the Moorpark. The fruit sold in the New-York market at \$2.50 per hundred. The tree was of erect growth, and had an uncommonly thick leaf, in which respect it differed from the Moorpark. Mr. PARDEE agreed with Mr. HAMILTON, and stated that the Peach apricot was the only one from which he could get a crop.

Mr. DOWNING was satisfied that the two were identical. Mr. BUIST was of the same opinion.

Mr. HAMILTON said there was no aperture in the stone of the Peach variety, whereas everybody knew that there was in that of the Moorpark.

Mr. HANCOCK declared that the aperture was exactly the same in both. The two were identical, in fact. He could not see any difference in the leaf; and in adjoining rows of the two varieties, he was unable to discover six inches difference of growth between them, in trees of the same age and cultivation.

Mr. HAMILTON had the Peach apricot from three sources—Dr. Rumsey, Mr. Prince, and Dr. Townsend; and in all the specimens there was a considerable difference in the thickness of the leaf, as compared with that of the Moorpark. It was manifest to feeling on the least touch.

Mr. ALLEN stated that he found the hole in the stone in both the Moorpark and Peach varieties, and considered them in all respects identical. Mr. REID said the same.

On motion, the proposal to add the *Peach* apricot was passed by. (Equivalent to a rejection.)

GOOSEBERRIES.

No discussion whatever took place on this fruit. The ten varieties recommended will be found in the general list of fruits worthy of cultivation. The *Early Sulphur* was added to the committee's list on motion of Mr. WILSON, N. Y.; the *Green Gage* on motion of Mr. BATTEY, N. Y., and the *Green Walnut*, on motion of Mr. LITTLE, Me.

This completed the list of Fruits worthy of general cultivation which the committee designed to offer.

Mr. WILSON moved to add to the list of currants, *Knight's Sweet*

Red. It was a large sized currant, which he regarded as the finest of all. It had for two years taken the premium at Albany for size and sweetness.

Mr. BUIST thought it a very excellent currant and it grew in larger bunches than other kinds.

Mr. HANCOCK had cultivated this variety and had been humbugged; he expected a sweet currant and got one as sour as any of them. He could not tell the difference between this and the Red Champagne except from the labels on the bushes.

Mr. WILSON said Mr. HANCOCK could not have got the right kind of currant. Col. HODGE said he had it and had found it finer and sweeter than any other.

The motion did not prevail.

Mr. DOWNING had next to submit, a small list of Fruits which give promise of becoming worthy of general cultivation, which will be found under this head in the general list. No debate occurred on any of these fruits (further than is to be found in the preceding pages,) excepting a few words concerning the *McLaughlin Plum*. Mr. LITTLE stated that it was introduced into Maine some seven or eight years ago, and had ever since been steadily growing in public estimation. This year the Fruit committee of the Bangor Horticultural Society pronounced it superior to all varieties except the Green Gage. Mr. WALKER said that the committee of the Massachusetts Horticultural Society had given their opinion that it was a very excellent fruit, approaching very nearly in flavor to the Green Gage.

Mr. DOWNING then stated that he had in his possession a large number of reports, of which he had had no opportunity as yet to make a digest, and he asked the pleasure of the Congress in relation to them.

On motion of Mr. MCINTOSH, it was voted that they be referred to the chairman of the General Fruit Committee for revision, and then to the Secretaries to be published with the doings of this Congress.

Mr. SAUL suggested the expediency of some action going to fix a determinate day for the next meeting at Cincinnati. A long discussion ensued on this subject, in which Messrs. SAUL, MCINTOSH, HODGE, WILSON, S. B. PARSONS, WALKER, HOVEY, HANCOCK, HAMILTON and CLEVELAND participated. The debate was of no importance and finally the whole matter was laid on the table, thus leaving the settlement of the particular time (as was contemplated by the

report from the committee which was yesterday accepted) in the control of the President of this Congress and the President of the Ohio State Board of Agriculture.

Dr. BRINCKLE, from the committee on Seedling Fruits, submitted the following report, which was accepted.

The committee on Seedling fruits report that the following seedling varieties have been examined by them.

Lawrence's Aromatic Gage Plum, from J. C. Hastings, Clinton, Oneida Co., N. Y. A small late plum, good, beautiful and worthy of further trial. It is a seedling from the Green Gage. The committee suggest that it be called simply the *Aromatic Gage*.

Tea Pear, from New Haven, Ct., quality good.

Howell Pear, from New Haven ; very good.

Pardee's Seedling Pear, from New Haven. Specimen over ripe ; but it appears to possess good qualities. Three other seedling pears from New Haven were not in eating condition, being unripe.

Balm Apple, from H. C. Hunt, Vt. Medium size, fair quality, or good. Said to bear every year.

Tender Apple, presented as a cooking apple.

Jewett's Best Apple.—Of fine appearance, but not in season for eating. Has a high character in its original neighborhood.

Northern Golden Sweeting, from J. Battey, Keeseville, N. Y.; of beautiful appearance, good size, best quality. We recommend it be called simply the *Northern Sweet*.

Champlain Apple, from the same. Good quality, beautiful appearance.

Bailey's Spice Apple, from the same. Good, spicy, handsome.

Forrence Apple, from the same ; good.

Ribbed Codlin, from D. Miller, Jr., Carlisle Pa. Large, waxen, tender ; good, particularly for cooking.

Cumberland Seedling Apple, from the same ; large, handsome, oblate, red, tender flesh, pleasant, very good.

Page Apple, from Henry Little, Bangor, Me., handsome, good appearance, not in eating order.

Seedling from Nauvoo.—Not in eating order.

Seedling Pear No. 1., from W. T. & E. Smith, Geneva, N. Y. Specimen of inferior quality.

Seedling Pear No. 2., from the same. Quality not good.

Seedling Apple No. 1., from the same. Large size, greenish yellow, quality good.

Seedling Apple No. 2., from the same. Not in eating order.

Seedling Apple No. 3., from the same. Not in eating order.

Chancellor Pear, from Germantown, Pa., large size, very good.

Seedling Pear, from Geneva, N. Y. Large, not fully ripe but promises well. We recommend it to be called the *Geneva*.

Catherine of Canandaigua.—Large, good. We recommend it be called simply the Canandaigua.

By order of the committee.

W. D. BRINCKLE, *Ch'n.*

MR. WALKER here quitted the chair, which was assumed by Mr. CLEVELAND.

MR. BARRY said that the Congress had been much indebted to the American Institute and the courtesy of its officers, and he moved that the thanks of the American Pomological Congress be presented to the American Institute, together with all the fruits on the tables, except such specimens as the contributors may wish to retain. Carried unanimously.

On motion of Col. HODGE, it was voted that the thanks of the Congress be presented to SAMUEL WALKER, Esq., President *pro tem.* for the able and impartial manner in which he has discharged the duties of the office.

The thanks of the Congress were also voted to the Secretaries and Fruit Committee for their faithfulness in discharging their duties.

On motion of Mr. DOWNING, the Secretaries were requested to use all possible despatch in preparing a report of the session for publication, and were directed to forward copies thereof to all members of the Congress.

And then on motion of Mr. BARRY, the Congress adjourned, to meet next year at Cincinnati.

AMERICAN POMOLOGICAL CONGRESS,

OCTOBER, 1849.

GENERAL FRUIT LIST.

FRUITS WORTHY OF GENERAL CULTIVATION.

(Added to former List.)

APPLES.

White Seek-no-further,	Danver's Winter Sweet,
Fameuse,	Wine Apple,
Porter,	Red Astrachan,
Hubbardston Nonsuch,	Vandervere,
Winesap,	Bullock's Pippin,
Lady Apple,	Swaar.

PEARS.

Rostiezer,	Buffum,
Belle Lucrative, or,	Urbaniste,
Fondante d'Automne,	Vicar of Winkfield,
Fulton,	Louise Bonne de Jersey,
Andrews,	Uvedale's St. Germain, for baking.

GRAPES UNDER GLASS.

Black Hamburgh,	White Frontignan,
Black Prince,	White Muscat of Alexandria,
Black Frontignan,	Chasselas de Fontainbleau.
Grizzly Frontignan,	

NATIVE GRAPES—OPEN CULTURE.

Isabella,	Catawba.
-----------	----------

NECTARINES.

Elruge,	Downton.
Early Violet,	

RASPBERRIES.

Red Antwerp,	Franconia,
Yellow Antwerp,	Fastolff.

y

STRAWBERRIES.

Large Early Scarlet,	Boston Pine.
Hovey's Seedling,	

CHERRY.

Belle Magnifique.

APRICOTS.

Large Early,	Moorpark.
Breda,	

CURRANTS.

Red Dutch,	May's Victoria,
White Dutch,	Black Naples.
White Grape,	

GOOSEBERRIES.

Houghton's Seedling,	Laurel,
Woodward's Whitesmith,	Warrington,
Crown Bob,	Green Gage,
Red Champagne,	Green Walnut,
Early Sulphur,	Ironmonger.

REJECTED FRUITS.

APPLES.

Gloucester White,	Hoary Morning,
Beachemwell,	Large Red Sweeting,
Pennock,	Red Doctor,
Henry's Weeping Pippin,	Grand Sachem,
Red Ingestrie,	Cathead,

White do.
 Kirke's Lord Nelson,
 Marmalade Pippin,
 Priestly,
 Rowland's Red Streak,
 Red or Royal Russet,
 Woolston's Red Streak,
 Golden Reinnette,
 Woolston's White Sweet,

Dodge's Early Red,
 Gray French Reinnette,
 Muscovia,
 Irish Peach,
 Pigeonette,
 Salina,
 Caroline, (English,)
 Fenouillet Rouge.

PEARS.

Croft Castle,
 Swiss Bergamotte,
 Sousreine,
 Thompson's of New-Hampshire,
 Tucker's Seedling,
 Trubshurdy Dulle,
 Whitfield,
 Winter Orange,
 Wurtzer d'Automne,
 Yutte,
 Crassane,
 Winter Crassane,
 Citron of Bohemia,
 Madotte,
 Frederic of Prussia,
 Famenga,
 Forme Urbaniste,
 Fantasia Van Mons,
 Lederbirne,
 Louis Bonne,
 Lansac,
 Madame Vert,
 Miller's Seedling,
 Marquise,
 Marcellis,
 Navez,
 Alexander of Russia,
 Admiral,

Forme des Delices,
 French Iron,
 Green Fair,
 Grise Bonne,
 Garnstone,
 Green Catharine,
 Green Sugar,
 Gros Blanquet,
 Green Chisel,
 Hays,
 Hawthorne's Seedling,
 Horticulture,
 Hastiveau,
 Ipswich Holland,
 Jargonelle, (of the French,)
 Kramelsbirne,
 Lincoln,
 Louis of Bologna,
 Orange,
 Orange Tulippe,
 Phillips,
 Pitfour,
 Platt's Bergamotte,
 Passe Long Bras,
 Prince's Portugal,
 Pope's Scarlet,
 Cuvelier,
 Chat Grille,

Aston Town
 Autumn Bergamot,
 D'Amour,
 Angers,
 Beurré d'Angletérre,
 Beurré Seutin,
 Beurré of Bolwiller,
 Bon Chrétien d'Espagne,
 Bon Chretien of Brussels,
 Bergamotte Sylvange,
 Bergamotte Fortunée,
 Beauty of Winter,
 Belmont,
 Bezi Vaet,
 Bruno de Bosco,
 Blanquet à longue queue,
 Burgomaster,
 Elton,
 Royal d' Hiver,
 Rouslette St. Vincent,
 Swans Egg,
 Saint Bruno,

Chair a Dame,
 Charles Van Mons, (old,)
 Cassolette,
 Compte de Fresnel,
 Copea,
 Caillat Rosat,
 Clara,
 Clapp,
 Citron de Sirentz,
 Dearborn of Van Mons,
 Downton,
 Duquesne d'Eté,
 Doyenné Mons,
 Deschamp's New Late,
 Dumbarton,
 Doyenné Doré,
 Endicott,
 Pitt's Marie Louise,
 Rouse Lench,
 Sans Pepins,
 Surpasse Meuris.

NEW VARIETIES

WHICH GIVE PROMISE OF BEING WORTHY TO BE ADDED TO THE LIST
 FOR GENERAL CULTIVATION.

PEARS.

Duchesse d' Orleans,	Pratt,
Brandywine,	Ott,
Chancellor,	Striped Madeleine,
Doyennè d' Eté,	Ananas d' Eté,
Beurrè d' Anjou,	Jalousie de Fontenay Vendeé,
Manning's Elizabeth,	Van Assenè,
Brande's St. Germain,	Doyenné Boussock. .

PLUMS.

McLaughlin,	River's Favorite,	St. Martin's Quetsche.
-------------	-------------------	------------------------

STRAWBERRIES.

Jenney's Seedling.

RASPBERRY.

Knevelt's Giant.

GRAPE—NATIVE.

Diana.

[Reported by Thos. Tilleston, Jr.]

LIST OF FRUITS ADOPTED BY THE CONVENTION OCT., 1848.

APPLES.

Early Harvest,	Rhode Island Greening,
Large Yellow Bough,	Baldwin,
American Summer Pearmain,	Roxbury Russet,
Summer Rose,	<i>And, for particular localities,—</i>
Early Strawberry,	Yellow Belle Fleur,
Gravenstein,	Esopus Spitzenburg,
Fall Pippin,	Newtown Pippin.

PEARS.

Madeleine,	Flemish Beauty,
Dearborn's Seedling,	Beurré Bosc,
Bloodgood,	Winter Nelis,
Tyson,	Beurré d' Aremberg,
Golden Beurré of Bilboa,	<i>And, for particular localities,</i>
Williams' Bon Chrétien, or	White Doyenné,
Bartlett,	Gray Doyenné.
Seckel,	

PEACHES.

Grosse Mignonne,	Coolidge's Favorite,
George IV,	Bergen's Yellow,
Early York, <i>serrated</i> ,	Crawford's Late,
Large Early York,	<i>And, for particular localities,—</i>
Morris White,	Heath Cling.
Oldmixon Freestone,	

PLUMS.

Jefferson,
Green Gage,
Washington,
Purple Favorite,
Bleeker's Gage,

Coe's Golden Drop,
Frost Gage,
Purple Gage,
And, for particular localities—
Imperial Gage.

CHERRIES.

May Duke,
Black Tartarian,
Black Eagle,
Graffion, or Bigarreau,

Knight's Early Black,
Downer's Late,
Elton,
Downton.

REPORTS

OF THE GENERAL COMMITTEE ON FRUITS.

It was the expectation of the Congress, in appointing the general committee, consisting of sub-committees in most of the States, to have full reports from all the principal sections of the Union; and it was the intention of the chairman to present a digested abstract, showing the result of the experience thus accumulated, in a condensed form.

But the disastrous frost of April, 1849, more fatal in its effects, and more severe through the country generally, than any for thirty years previous, cut off most of the crop of fruit, and thus made it difficult, and often impossible for the state committees to collect that precise information regarding different varieties, which was needed. Many of the committees, therefore failed to make any report—not from want of interest in the subject, but solely from the impossibility of collecting materials. Another season will, it is hoped, enable them to present this part of the subject in a more satisfactory shape.

As the following reports, though incomplete, contain a great deal of information highly useful in a local point of view, it has been thought advisable to present them entire, and leave all generalisation till the whole subject is presented this autumn, in a more complete form

A. J. DOWNING,
Chairman General Fruit Committee.

PENNSYLVANIA.

REPORT OF FRUIT COMMITTEE.

The Fruit Committee for the State of Pennsylvania, appointed by the American Congress of Fruit Growers, respectfully report :

That the general failure of the fruit crop this season, in conjunction with the prevalence of a malignant epidemic, has prevented them from devoting that attention to the subject of their appointment, which they contemplated and desired. In another year they flatter themselves a better opportunity will be afforded for performing their proper duties, and a report may then be presented, more satisfactory to the committee and to the Congress. On the present occasion, they propose confining their report to a few brief remarks in relation to some of the fruits cultivated in this region, and more especially those which have originated in our own State, or its immediate vicinity.

The Apple generally succeeds well in Pennsylvania. The old varieties, which have long been in cultivation, have latterly been deteriorating ; and most of the reputed fine sorts from other parts of our country have not yet been introduced among us a sufficient length of time to enable us to form an accurate judgment of their adaptation to our soil and climate. It is believed there are many seedling varieties in this region worthy the attention of the Pomologist. A few only of these will be noticed at this time.

Jeffries.—This is a new, Chester county apple, of good size and fine flavor ; ripe the beginning of September. It received the premium offered by the Pennsylvania Horticultural Society, for the best seedling apple exhibited in 1848. A similar premium was also awarded to it by the Horticultural Society of Westchester.

Republican Pippin.—An autumn apple of merit. Its size, appearance and flavor, all recommend it to our favorable notice. It is a native of Lycoming county, Penn.

Smoke-house.—This fine Pennsylvania apple has not yet been extensively cultivated out of its native state. It is a good autumn apple, and deserves to be better known.

Fallenwalder.—This native apple is much grown in some parts of Pennsylvania, especially the interior counties. Though only a second-rate fruit, yet its large size and fine keeping qualities, render

it worthy of cultivation. In horticultural works it is usually called the Fallawater, which has been corrupted by our huckster women into "Pollywaller" and "Pollywolly." It originated in Berks county in this state, where it is also known as the Tulpahocken, after a stream of that name near its original locality. It sprung up in the woods, and was left standing after the other trees were cut down, hence the name Fallenwalder—the apple of the cut-down woods.

Kane.—This is a good autumn apple, but not to be compared in flavor with some other apples of its season. Its beautiful, fair and brilliant appearance, however, will always render it a most desirable ornamental fruit for the table. Its origin is not precisely known, but it is believed to be a native of Delaware.

Brandywine Pippin.—This native Delaware apple, which was sent to the Pennsylvania Horticultural Society last spring for the first time, made a favorable impression. It is of good size, with a pleasant aromatic flavor, and possesses fine keeping qualities. It was eaten by the committee on the 8th of March, 19th of April, and again on the 7th of May. It originated contiguous to the Pennsylvania line, in Brandywine Hundred.

The United States has contributed a large and truly valuable collection of native pears to the Pomological world. Many of these, when brought into competition with the most renowned trans-atlantic varieties, will not suffer in the comparison; and possess in a marked degree the decided advantage of being better adapted to the necessities of our trying and variable climate. Some that are of Pennsylvania origin, including the far-famed Seckel, we proceed simply to notice,

Brandywine.—A new Pennsylvania pear of merit, and worthy of cultivation. Ripe the last of August.

Chapman.—The original tree is on the grounds of the veteran Horticulturist, Colonel Robert Carr, near Philadelphia. It is a seedling of the Petre, and stands within some thirty or forty feet of its parent. Though not fine in texture, it is a high-flavored, juicy pear. It was named in honor of the lady of a British officer who admired its flavor. Colonel Carr sent scions of it to Vilmorin & Co., of Paris, in 1820, and again in 1825, under the name of the Chapmans. Loudon, in his Encyclopedia of Gardening, notices it as being of American origin, and resembling the Passe Colmar, to which it does not bear any similitude. And the London Horticultural Society's

catalogue, gives it as a synonym of the Passe Colmar. This apparent discrepancy in confounding the Chapman, of American origin, with the Passe Colmar is explained by a fact recorded by McIntosh, who states that an English market gardener by the name of Chapman propagated the Passe Colmar very extensively, and sold it as a new variety, to which he gave his own name. Ripe the beginning of September.

Chancellor.—This fine pear is believed to be a native of Pennsylvania. Only two trees in bearing, of this variety, are known to the committee; one is at the country residence of Mr. Wharton Chancellor, near Germantown; the other is in Germantown, in the garden of Mr. Green, from a graft of the preceding. Ripe the last of September and beginning of October.

Leech's Kingsessing.—A Pennsylvania pear of high character. As the tree is on ground which has never received any tillage, it is natural to presume, that the fruit from grafted and budded trees, will be even finer than that obtained from the original. Ripe last of August.

Lodge.—A Pennsylvania pear of the first quality, and a most abundant bearer. The specimens this season, were unusually large, and fine. As soon as Mr. Lodge, the proprietor of the original tree, became aware of its merits, he caused it to be removed from the hedge, where it sprung up, to a more desirable situation, and thereby destroyed it. But scions having previously been taken from it, the variety was preserved. Ripe the last of August, and beginning of September.

Moyamensing.—Although the original tree has been standing in Philadelphia on the premises of the late Jno. B. Smith, for more than half a century, it has been but little disseminated, until within a year or two. It is a fine late summer pear, of a peculiar and handsome form.

Ott.—A new Pennsylvania variety of small size and superior flavor. Ripe a month earlier than the Seckel, of which it is a seedling. This is probably the best summer pear we have.

Pennsylvania.—An agreeable early autumn pear of high flavor, but of coarse texture. The original tree stands within twenty or thirty feet of the Moyamensing.

Petre.—The original tree still flourishes on the grounds of Col. Carr. Why it has not been more extensively cultivated in this vi-

cinity, is incomprehensible to us, since it bears uniformly, and most abundantly, and the fruit is of the first quality.

Seckel.—It will no doubt be interesting to Pomologists, to be informed, that the original world-renowned Seckel, is still in existence, though in a decaying condition, within the precincts of the county of Philadelphia. The city, to whom the ground on which it stands was bequeathed by the late Stephen Girard, has recently taken measures for its better preservation. Specimens of fruit from this parent tree, were exhibited a few weeks ago, at the annual show of the Pennsylvania Horticultural Society.

Stienmetz's Catherine.—A refreshing and juicy, late summer pear of good size. Though Mr. Steinmetz obtained it from a nursery, in his vicinity for a grafted early Catherine, it is believed to be a native variety. The tree is very productive, and the fruit this season was unusually large, some specimens being three inches and three-quarter in length, by two and a half in width.

Tyson.—A valuable Pennsylvania pear, now pretty well known and properly appreciated at the eastward and in western New-York, contrary to what would be anticipated from the slender growth of the young wood, the tree acquires a great size. The fruit this season was large and remarkably fine. We saw specimens in 1848 with a brilliant red cheek, from a tree which bore marked evidences of having been treble-worked, at the country seat of Mr. Welsh. Adjacent to this tree is another of large size, bearing fruit of the usual appearance; period of maturity from the middle of August to the beginning of September.

Washington.—This truly fine pear, though not a native of Pennsylvania, originated only a few hundred yards beyond its border in the State of Delaware. The original tree is still standing in the garden of Col. Thos. Robinson, at Naaman's creek. Allied to the white Doyenné, of which it is probably a natural seedling, and almost, if not quite equal to it in flavor, it possesses over that variety the decided advantage of perfecting fair and delicious fruit beyond city limits.

The *Feaster*, *Hanover*, *Hewes*, *Jones*, *Lycoming*, *Montgomery*, and other new native varieties of this region, have attracted the attention of the committee, but they defer giving an opinion in regard to their merits, till they have had a further opportunity of testing their qualities.

Autumn Bergamot.—Under this name Col. Carr cultivates a pear

of great excellence, worthy of extensive dissemination, and of which the following is a concise description : fruit $2\frac{1}{8}$ inches long by $2\frac{1}{8}$ wide ; roundish turbinate ; skin yellowish, with numerous minute russet dots, and a small russet patch at the insertion of the stem, and occasionally around the calyx ; stem 1 inch long, $\frac{1}{8}$ thick, inserted with little or no depression, but with a slight prominence on one side ; calyx small, closed, set in a shallow basin ; seed plump, dark brown ; flesh of fine texture, exceedingly melting and buttery ; flavor delicious, delicately aromatic, without any bergamot perfume ; ripe from the first to the middle of September. An outline of two specimens is annexed. What variety is it ?

Bezi de la Motte.—This old variety, once so celebrated for its excellence, bears uniformly and abundantly ; the tree is still flourishing ; the fruit continues to be well formed, exceedingly buttery and melting, but so entirely devoid of flavor, as now scarcely to rank with us even third rate.

Doyenne Blanc and *Doyenne Gris*.—These varieties, under ordinary treatment, and beyond city limits, are utterly worthless in our region. In towns, however, they still do well, maturing fruit of beautiful appearance and excellent quality.

Fondante d'Automne.—This most valuable Belgian pear preserves with us its high character.

Louise Bonne de Jersey.—A most desirable variety here, as in other places, on account of its productiveness and other good qualities.

The *Bartlett*, *Beurré d'Anjou*, *Doyenné Boussock*, *Flemish Beauty*, *Passe Colmar*, *St. André*, *Van Mons Leon le Clerc*, *Beurré d'Aremberg*, and many other English, French, and Flemish pears, of high repute, have scarcely come into bearing with us ; at least not to any extent.

The *Plum*, though a most luscious fruit, is so liable in this section of country to the ravages of the curculio, as to restrict in a great measure its extensive cultivation. In towns, however, this destructive insect being less abundant, the *Washington*, *Huling's Superb*, *Green Gage*, *Coe's Golden Drop*, and other desirable kinds, are cultivated successfully, especially where the ground, under the trees, is paved.

The market *raspberry* of Philadelphia, and the kind most commonly cultivated in Pennsylvania, is the *Genesee*, a native of western New-York, and found also in a wild state, on the Pocono mountain, in this State. Though usually called *Red Antwerp*, it differs

from that variety in being of less size; not so well flavored, but more hardy.

The *true Antwerps* cannot be relied on for a crop, here, without protection. The same remark applies, though perhaps with less force, to the *Fastolff* and *Giant*.

The *Col. Wilder* and *Orange* have not yet been subjected to open culture. They have stood well, however, in a small yard in Philadelphia, while the *Fastolff* and *Antwerps* at their side were cut down by the winter.

Several new raspberries of fine size and flavor have been raised by a well-known Philadelphia nurseryman, and were exhibited before the Pennsylvania Horticultural Society during the past summer. Should they prove, as they probably will, more hardy than the foreign kinds, they will become a valuable acquisition to our collection.

Melons.—A very large citron melon of great excellence has recently appeared in the market of Philadelphia. It is grown by Mr. J. E. Scott, near Burlington, New Jersey, is nearly twice as large as the ordinary citron melon, and superior to it in quality. The committee consider it a new and distinct variety; and in their estimation the best melon of this region.

Water Melons.—The finest water melon in this section of country is the *Mountain Sweet*. It is of large size, oblong in form, the exterior of a uniform green color—of a lighter hue than the Spanish, thin rind, flesh scarlet to the centre, which is solid, brown seed, delicious flavor. The *Mountain Sprout* differs from the preceding in being striped, quite as large, of a similar form, rind somewhat thicker, flesh not so compact, seed of a pale red, flavor inferior to the preceding. The *Spanish* variety is also of large size, and good; not equal, however, in quality to the *Mountain Sweet*, and has a much thicker rind.

The present season having been so exceedingly adverse to pomological investigation, your committee have judged it expedient to withhold the remarks they designed making (and, indeed, which they had prepared,) on the remaining varieties of fruit, for another, and, they trust, a more propitious year. They are unwilling to conclude, however, without indulging the hope that the several State committees will embody in their next report a brief notice of all the good native fruits of their section of country. A mass of the most valuable and important information, in relation to the merits of these

American varieties, will in this way be collected by the Congress, and widely disseminated.

W. D. BRINCKLE,
E. W. KEYSER,
THO. P. JAMES.

Philadelphia, Sept. 28, 1849.

NEW-YORK.

REPORT OF B. HODGE, BUFFALO.

A. J. DOWNING, Esq.—As a member of the Standing Fruit Committee of the State of New-York, I have the pleasure of laying before you the following report. For reasons which I need not now mention, I have confined my remarks to a limited number of varieties. I am quite of the opinion that the time has arrived, in which we must very materially reduce the number of varieties of fruits now in cultivation. Yet at the same time fears may well be entertained that the pruning knife is about to be applied in too indiscriminate a manner. With some, there is a disposition to cut off all below “best,” or “first quality.” Now, in my opinion, the *fine flavor* of any particular sort of fruit is not the only ingredient in the catalogue of good qualities, that should be taken into the account. For instance, the Newtown Pippin all will admit to be of superior flavor. Yet in many parts of our country it is so unproductive and liable to bitter-rot, that it is altogether unprofitable. On the contrary, the Rhode Island Greening, although much inferior in flavor, yet in productiveness and other good qualities, can hardly be surpassed. The same remark will apply to Crawford’s early and Crawford’s late Melocoton peaches; neither of them are of superior flavor, yet for size, beauty and unproductiveness, they are perhaps equal to any other varieties; and in Western New-York are more extensively grown for the market, than any other sorts. For the same reason, would I retain in a very small collection even (at least one tree) of the Keswick Codlin Apple; in flavor, not above second quality, but exceedingly productive; in use for culinary purposes from June to October; and from its earliness in coming into bearing, indispensable to every new orchard.

In looking over the catalogue of fruits, but few varieties will be

found possessing or combining all the good qualities of a first rate fruit. Neither should the fruiting of any particular variety for one or two years, be considered as a sufficient test of its good or bad qualities. It should also be borne in mind that we have a great extent of country, and that latitude, soil and other causes, must and will have a great effect in various localities. For instance, the Stevens' Genesee pear, in some sections of our country, is considered as unworthy of cultivation; and yet here, were I to have but one pear tree, it should be Stevens' Genesee. For size, beauty, and productiveness, it is superior—in flavor it is nearly first rate, and often equal to the White Doyenne.

I am also of opinion, that an extensive list of fruits cannot be recommended for general cultivation. For instance, the Baldwin apple, so fine and fair in the eastern states and also in Western New-York, is in some parts of Ohio so subject to the bitter-rot as to be utterly worthless.

I apprehend, also, that much difficulty will be experienced in preparing a list of *rejected fruits*. Last year at the Pomological Convention at Buffalo, the Brown Beurré and the Bezi de la Motte pears were voted as unworthy of cultivation. Yet for one, I am not prepared to cast them out. In my humble opinion, they are superior to three-fourths of the varieties in cultivation. Both are very productive, and generally of good flavor; require to be gathered early, and ripened in the house, and are then generally fine. The Brown Buerié requires good culture, and the man who "plants his trees as he would a post," "stocks down his land to grass," and "trims up his trees so high that the cattle cannot injure them," had better select some other variety, say the Autumn Bergamotte or some kindred sort.

I give, in the following list, the experience of the orchardists in Western New-York. In rating them as regards quality, I follow the terms of comparison for good fruits, adopted by the Congress, viz: "good, very good, best."

APPLES.

Roxbury Russet, best; superior in all good qualities.

Baldwin, best; very productive and fine.

Northern Spy, best; productive and superior, requires good culture.

Rhode Island Greening, very good; one of the most productive and profitable.

Swaar, best; fruit very fair and fine.

Westfield Seek-no-further, very good; for January and February, very fine, soon loses its flavor.

Esopus Spitzenbergh, best; productive and fine, always commands the highest price in the market.

English Russet, very good; a long keeper, productive and fine.

American Golden Russet, very good; very productive.

Pomme Grise, best; popular, but too small to be profitable.

Danver's Winter Sweet, good; productive, fruit fair, keeps well.

Ladies' Sweeting, best; one of the very best winter sweet apples.

Early Harvest, best; productive and fine, requires good culture.

Bough or Sweet Bough, best; fruit always very fair, none better.

Early Joe, best; productive and fine, but soon decays.

Summer Rose, best; fine, but so far not productive.

Sinequanon, best; trees grow slow and not productive.

Early Strawberry, very good; productive, fruit fair.

Williams' Favorite, very good; productive and has but few equals.

American Summer Pearmain, very good; but recently fruited, so far fine.

Summer Sweet Paradise, very good; but recently fruited, so far fine.

Summer Queen, good; very fine for culinary purposes.

Jersey Sweeting, very good; one of the best of the season.

Peach Pound Sweet, very good; fair and fine.

Golden Sweeting, good, none more productive, profitable.

Pomme de Neige, very good; trees overbear, requires good culture, then very fine.

Red Astrachan, very good; popular in the market.

Keswick Codlin, good; very productive, at least one tree should be in every collection.

Jonathan, very good; recently fruited, so far very fine.

Fall Pippin, best; an old sort, but has but few equals.

Detroit Red, good; a very productive, popular market fruit.

Belmont, best; proves very fine.

Hubbardston Nonsuch, best; fully maintains its eastern reputa-

PEARS.

Bartlett, best; productive, always fair and fine.

Beurré Diel, best; productive, and fine on pear or quince.

Beurré Bose, very good.

Beurré d'Arenberg, best; one of the best winter pears.

Brown Beurré, very good; very productive, requires good culture.

Bloodgood, best; one of the best early pears.

Bergamot, Gansel's, very good; productive and generally very fine, first rate.

Doyenné White, best; with good culture none better.

Dearborn's Seedling, good; productive.

Duchesse d'Angouleme, very good; one of the best on the quince.

Easter Beurré, very good; fruit generally fair, requires care to ripen well.

Flemish Beauty, best; very productive, always fair and fine.

Frederick of Wirtemberg, very good; rather variable so far.

Fulton, good; very productive.

Fondante d'Automne, best.

Glout Morceau, best; among the finest winter pears.

Louise Bonne de Jersey, best; very productive and "the best pear on quince stock."

Marie Louise, very good; rather variable, generally good.

Madeleine, best; one of the best early sorts, should be gathered early.

Onondaga or Swan's Orange, very good; but recently fruited, so far, very fine.

Passe Colmar, very good; productive.

Paradise d'Automne, best; one of the very best autumn pears.

Seckel, best; productive and "the best autumn pear."

Steven's Genesee, very good; wonderfully productive, always large and fair.

Thompson, fruited two seasons, so far very good.

Winter Nelis, best; a most superior winter pear, productive.

Urbaniste, very good; so far sustains a fair reputation.

Andrews, best; so far fine.

Osband's Summer, very good.

Rosticzer, best; bids fair to prove of superior excellence.

Tyson, best; no doubt one of our very best sorts.

Van Mons Leon le Clerc, best; very fine, but not "the best."

CHERRIES.

American Heart, good; very productive.

Buttner's Yellow, very good; ripens late, and proves very fine.

Belle de Choisy, best; sweet and rich, not very productive.

Black Eagle, best; first rate in every respect.

Black Tartarian, best; " "

Black Heart, good; productive, and as yet a popular old sort.

Bauman's May, very good; the earliest sort, and fine for the season.

Bigarreau or Graffion, best; very productive and fine.

Belle Magnifique, very good; productive, and fine when fully ripe.

Downton, best; one of the most productive.

Downers Late, best; a very superior late sort.

Early Purple Guigne, good; ripens early, not very productive.

Elton, best; for size, beauty and flavor unsurpassed.

Holland Bigarreau, very good; bids fair to prove very fine.

Knight's Early Black, best; the very best early sort.

Late Duke, good; a very good late sort.

May Duke, very good; productive, should be in every collection.

Napoleon Bigarreau, best; a superior fruit, productive.

Tradesescent's Black Heart, very good; productive, and a fine market fruit.

Waterloo, very good; very productive, a valuable sort.

White Bigarreau, very good; generally productive and very fine.

PLUMS.

Bleecker's Gage, very good; productive and valuable.

Coe's Golden Drop, very good; fruit fair and fine, not very productive.

Columbia, very good; so far proves fine.

Duane's Purple, very good; very productive, and very beautiful.

Drap d'Or, very good; not very productive, fruit fine.

Frost Gage, good; productive, and a fine late variety.

Green Gage, best; "the best sort," succeeds well here.

Huling's Superb, very good; fruit very fair and fine.

Imperial Gage, very good; one of the most productive sorts.

Jefferson, best; but recently fruited, proves very fine.

Lawrence's Favorite, best; one of the very best sorts.

Purple Gage, best; this also proves very fine
 Smith's Orleans, very good; one of the most productive sorts.
 Washington, very good; succeeds well on a clay soil.
 White Damson, good; always produces large crops.

PEACHES.

Crawford's Early, good; the most productive, and profitable early sort.

Crawford's Late, very good; very productive, and always fine.

Early Tillotson, best; fruit fine, trees somewhat subject to mildew.

Early York, (serrated leaf,) best; productive and succeeds very well.

Grosse Mignonne, best; fruit always very fair.

George the Fourth, best; fine beautiful fruit, not very productive.

Noblesse, best; may be classed among the best sorts.

Red Cheek Melocoton, very good; very productive, sells well in market.

Royal George, very good; fruit generally fine, trees subject to mildew.

Red Rareripec, very good; fruit fine, some other sorts more productive

Snow Peach, good; productive, one of the best for preserving.

Large Early York, best; one of the most productive and best sorts.

In the above report I have purposely omitted many of the newer varieties of fruits. I have now in my grounds, and am annually importing from Europe, and procuring from various sources in our own country, the more choice and select sorts as they are brought out. Many of these are from year to year coming into bearing, but time is required to test them fully and judiciously. The world is full of humbugs, and many of the high sounding names of so called "choice fruits," are destined to perpetual banishment from the fruit garden, when once fairly tested.

All of which is very respectfully submitted.

Yours very truly,

B. HODGE.

BUFFALO NURSERY, Oct. 1, 1849.

MASSACHUSETTS.

REPORT OF FRUIT COMMITTEE.

No formal report was received from this committee, but in its place the following list of fruits, showing the experience of the cultivators of the State regarding many of the established varieties. By comparing these lists with the rejected, and the approved lists, as actually adopted in the Congress, the reader will be able to form a good idea of the effect of soil and climate of New-England on foreign fruits.—*Chairman Gen. Fruit Com.*

1. Fruits recommended to be added to the list for general cultivation:

Pears.

Rostiezer,	Buffum,
Andrews,	Vicar of Winkfield,
Fulton,	Uvedale's St. Germain, (or Pound
Fondante d' Automne,	for Cooking,)
Urbaniste,	Louise Bonne de Jersey (on quince).

Apples.

Porter,	Hubbardston Nonsuch,
Fameuse,	Danvers Winter Sweet,
<i>Grapes, (Foreign,) under glass.</i>	
Black Hamburgh,	Grizzly Frontignan,
Black Prince,	White Frontignan,
Black Frontignan,	White Muscat of Alexandria.

Native Grapes, for open culture.

Isabella,	Catawba.
-----------	----------

Nectarines.

Elruge,	Downton.
Violet Hative.	

Currants.

Red Dutch,	Black Naples,
White Dutch.	May's Victoria,

Raspberries.

Knevett's Giant,	Franconia,
Fastolff,	Yellow Antwerp,

Strawberries.

Early Virginia,	Hovey's Seedling.
-----------------	-------------------

2. New varieties, which give promise of being worthy to be added to the list for general cultivation :

PEARS.

Citron des Carmes Panaché, or	Duchesse d'Orleans,
Striped Madeleine,	Pratt,
Doyenné d'été,	Paradise d'Automne,
Elizabeth (Manning's,)	Van Assene,
Beurré d'Anjou,	Jalousie de Fontenay Vendee,
Doyenné Boussock,	Brande's St. Germain.

3. List of rejected fruits :*

Alexander of Russia,	Chair à Dame,
Amandes d'été,	Charles Van Mons, (Old,)
Admiral,	Cassolette,
Aston Town,	Comte de Fresnel,
Ambrosia,	Copea,
Amande Double,	Caillot Rosat,
Autumn Bergamot,	Clara,
D'Amour,	Cumberland,
Angers,	Colmar d'été,
Beurré d'Angleterre,	Clapp,
Beurré Seutin,	Citron de Sirentz,
Beurré of Boswiller,	Dearborn, (Van Mons,)
Beurré Delberg,	Downton,
Bon Chretien d'Espagne,	Duquesne d'été,
Bon Chretien of Brussels,	Doyenné Mons,
Bergamotte Sylvange,	Deschamps, New Late,
Bergamotte Fortuneé,	Dunbarton,
Bergamotte Parthenay,	Doyenné Diere,
Beauty of Winter,	Enfan Prodige,
Boucquia,	Endicott,
Belmont,	Elton,
Bezi Vaet,	Fondante d'été,
Bruno de Bosco,	Frederick of Prussia,
Blanquet à Longue queue,	Famenga,

* It will of course be understood that this list applies to Massachusetts. Many of the varieties rejected here are valuable in other parts of the country more favored in soil and climate. A considerable portion of them, however, will be found in the list actually rejected by the Congress. CHAIRMAN.

Burgomaster,
 Cuvelier,
 Chat Grille,
 French Iron
 Green Yair,
 Grise Bonnet,
 Garnstone,
 Green Catharine,
 Gilogil,
 Green Sugar,
 Gros Blanquet,
 Green Chisel,
 Hays,
 Hathorne's Seedling,
 Horticulture,
 Hastiveau,
 Ipswich Holland,
 Jargonelle, (of the French,)
 Kramelsbirne,
 Lincoln,
 Louis of Bologne,
 Lederbirne,
 Louise Bonne,
 Lodge,
 Lansac,
 Madame Vert,
 Miller's Seedling,
 Marquis,
 Marceis,
 Navez,
 Orange,
 Orange Tulippe,
 Phillips

Forme Urbaniste,
 Fantasia Van Mons,
 Forme des Delices,
 Pitfour,
 Platt's Bergamot,
 Passe Long Bras,
 Prince's Portugal,
 Pope's Scarlet Major,
 Pitt's Marie Louise,
 Royale d'Hiver,
 Rouse Lench,
 Rousselette St. Vincent,
 Sans Pepins,
 Swan's Egg,
 Surpasse Meuris,
 Saint Bruno,
 Swiss Bergamot,
 Souvereine,
 Sickler,
 Thompson's (native N. H.)
 Tucker's Seedling,
 Trubscherdy Dule,
 Valee Franche,
 Whitfield,
 Windsor,
 Winter Orange,
 Wurtzer d' Automne,
 Yutte,
 Crassane,
 Winter Crassane,
 Citron of Bohemia,
 Madotte,
 Belle de Bruxelles,

APPLES.

Beachamwell's,
 Cathead (of Philadelphia,)
 Caroline (of English cat.),
 Dodge's Early Red,
 Fenouillet Rouge,

Grey French Reinette,
 Muscovia,
 Irish Peach,
 Pigeonette,
 Salina,

S. WALKER,
 JONAH LOVETT, 2d,
 ROBERT MANNING,
 P. B. HOVEY, JR.,
Committee.

VERMONT.

REPORT OF C. GOODRICH.

BURLINGTON, (*Vt.*) *Sept. 28th, 1849.*

TO MARSHALL P. WILDER, Esq.,

Pres't National Convention Fruit Growers :

SIR—I have not been able to meet with or consult the other members of your committee who reside at Bennington, as we have fewer communications with that town than with Liverpool, and as we have no State organization, no *definite* State report can be made.

The past season has been *very* dry, and for two months very warm, the thermometer for some days rising to 100° and more. But little rain fell last fall, and for 1849 it has been for

January 1 to May, ... 3.81 inches.

May, ... 2.74

June 1 to August 6, ... 3.14

August 6 to 14, ... 4.16

and since, occasional showers.

This, for this country, unprecedented drought, affected fruit variously ; the size was small until the rain in August, since which all except early fruits have increased in size rapidly ; still, the crop is about two weeks later than an average, and about three-fourths the usual size. Some northern varieties of Apples are very poor, others good, while the Newtown Pippin is larger and fairer than I have ever be-

fore seen it. As a whole, we have a full average of Apples, Pears, Plums and Cherries, both as to quality and quantity. Grapes were never better ; the berries in some cases small, but no mildew.

Of Apples, many English and Canadian varieties were among the first cultivated. The Cornish Gilliflower, generally discarded, is here one of the highest flavored. Ribston Pippin and English Apples generally, flourish well.

Among Apples generally cultivated,

Early Harvest is here hardy, and in every respect first rate.

Sweet Bough, do. do.

Porter, do.

Gravenstein, do.

Fameuse is a great favorite, a great bearer in alternate years, but not equal to those grown in its native locale, Montreal, and ripens a month earlier.

St. Lawrence, another native of Montreal, is first rate for cooking or for a dessert apple, and ripens two weeks earlier.

Among our winter Apples, the Esopus Spitzenbergh was one of the first introduced ; has been extensively cultivated, but is apt to be spotted, and for our climate is not equal to the

Baldwin, which is in every respect first rate.

Rhode Island Greening, do.

Hubbardston Nonsuch, do.

Roxbury Russet, do.

Our best winter sweet Apple is the Danvers Winter Sweet. The Ladies Sweeting recently introduced, promises well in favorable situations. The Newtown Pippin, in favorable locations, is in some seasons good, occasionally very fine, and sometimes very poor. Not recommended for general culture.

The Northern Spy has not yet fruited. No variety grows better than this, or appears more hardy.

The Yellow Belle Bleu is considerably cultivated 25 miles north of this, where it is a very vigorous grower, a good bearer, and a great favorite.

The Pomme Grise, from Montreal, and the Burressa from Quebec, are here Apples of the highest flavor, and worthy a trial further south.

Of Pears, the White Doyenné is one of the most common ; it is always fine, and trees healthy—was among the first introduced. There has been but little attention given to the introduction of new varieties

until a few years past, not long enough to speak with confidence. Generally they promise well—but few instances of blight. Dearborn's Seedling is our best summer pear.

The Bartlett is a favorite.

Plums are abundant, and trees are healthy. No disease of any kind has ever attacked them.

The Grapes mostly cultivated are natives of New England. The Isabella ripens well in good situations, but requires slight protection in winter.

Should you deem this of any service, use it; if not, it may be thrown aside. I hope another year to have materials to make something like a State report; also, should I not be able to attend, to be able to send a box of specimens, which I should now do did a private opportunity offer.

Very respectfully,

Your obedient servant,

G. GOODRICH.

CONNECTICUT.

REPORT OF THE STATE COMMITTEE.

Your committee for the State of Connecticut, would respectfully report, that they have endeavored to collect all the information, relating to the subject for which they were appointed, that could reasonably be expected in one short season.

It will be proper to state here, that one of your committee, George Olmsted Esq. of East Hartford died soon after his appointment. Rev. Wm. W. Turner of Hartford was appointed by the chairman, to fill the vacancy thus occasioned.

The observations of those of your committee residing at New Haven will be upon the success of fruit culture on a light sandy soil, lying upon a sandy subsoil and situated on the seacoast. Of the others residing at Hartford, upon both a sandy and clayey soil, lying upon either a clay or gravelly subsoil and situated about thirty miles interior on the Connecticut river.

We will commence with the first fruits of the season and take notice of them in the order in which they come to maturity, with this

general remark ; notwithstanding the soil in and around New Haven is so light and sandy, it appears nevertheless, with suitable tillage, to be well adapted to nearly all the fruits commonly cultivated in our latitude, except apples, which do much better on the higher and heavier soils in the state, especially in the counties of Hartford and Litchfield. Our soil affords very convenient harbor for insects, and if we have apples at all we must generally either take them *inhabited* or second hand.

Strawberries.

This fruit in ordinary seasons, begins to ripen the last of May and continues about a month. There are about thirty varieties cultivated with us. Nearly every garden has its strawberry bed. The varieties considered the best, are Hovey's seedling and Boston Pine. They are planted on the same bed or near by, but the plants are not allowed to intermingle. The Crimson Cone, Chili, Buist's Prize, French Yellow, Willie's Seedling, Bishop's Orange and Jenny's Seedling stand next in merit. The Peruvian, a staminate variety, bears fruit of more uniform size than Hovey's Seedling, but is a shy bearer. Black Prince, good bearer, but lacks flavor ; Methven Scarlet, Ross' Phœnix, Princess Alice Maude and Prolific Hautbois are about third rate. Aberdeen Beehive, Early Va. Scarlet and some others so far as they have been tried, rank no higher than "good." The Alpines are also considered of not much value for general cultivation.

Raspberries.

The American or common Red, Franconia and Fastolf are most esteemed. The Red, White and Yellow Antwerps do not stand our winters unprotected and are but little cultivated.

Gooseberries

Are so liable to mildew with us, that not much attention is paid to their culture ; and yet they may be found in many of our gardens, and in some cases when considerable attention is given, do well. They do not appear so subject to mildew in gardens situated near salt water, that is, within a few rods.

Cherries.

This fruit does very well in the light soil of New Haven, and comes early into bearing. The trees seldom get winter-killed, yet some-

times die without apparent cause. They grow in six or eight years to eighteen feet or more in height, eight or ten inches diameter in the trunk, and eighteen or twenty feet across the branches. The birds and flies, however, often lay claim to a large share of the best of the fruit.

The May-Duke is a regular and great bearer, ripening in succession on the same tree ; Belle de Choisy, very good, but shy bearer ; Royal Duke does well ; Kentish Morello bears abundantly and regularly.

Black Eagle is one of the richest and best flavored ; Black Tartarian, large and one of the best ; Honey Heart, small, but good bearer ; Elton, tender fleshed and of best quality.

Bigarreau or Yellow Spanish, White Bigarreau or White Ox Heart, Holland Bigarreau, Flesh colored Bigarreau, Tradescants Black Heart or Elkhorn and American Heart are about all the firm-fleshed varieties cultivated with us. They are shy bearers generally, but the fruit is large and good ; probably they produce more abundantly on heavier soils. (All, except White Bigarreau, bear most abundantly in the heavy loam of the Hudson. *Chairman Gen. Fruit Com.*)

Plums.

A dozen years ago the opinion was very general that plums could not be raised at New-Haven and its vicinity on account of the disease known by the name of knots or warts. The disease, however, has gradually subsided, and plums are now raised, both in size and quality, to the satisfaction of all who are so fortunate as not to have them destroyed by the curculio. Various experiments for the destruction of this insect, or to prevent its injuring the fruit, have hitherto proved ineffectual, unless a preventive recently discovered by one of your committee shall prove, as it fairly promises, to be entirely effectual.

The following are most of the varieties cultivated : Green Gage, best ; trees grow rather slowly, but they are free and regular bearers and the fruit is decidedly the best ; Washington, Yellow Gage, Goliath, Buel, Huling's Superb and Jefferson, take the same rank ; Coe's Golden Drop and Imperial Gage, decay on the tree ; Smith's Orleans, Bleecker's Gage, Emerald Drop, Dominie Dull and Lombard, very good ; Royal de Tours, very good, but shy bearer ; Frost Gage is of best quality ; White Magnum Bonum very good for preserves ; Damsons good.

Peaches.

People in our region have become very much discouraged in regard to raising this delicious fruit. The trees have the yellows in many cases, before they begin to bear, and if they bear at all, it is only for one or two seasons; seedlings, or some inferior sort, may be an exception. The choice standard varieties, if they bear so much as one season, do not last. One of your committee, ten years ago, raised as fine peaches as could be desired, and in great abundance; but now, on the same ground, with much pains, is unable to get any worth naming.

The theory of Dr. Van Mons, "that the improvement of the quality of the fruit is at the expense of the life of the tree," and "that those trees which produce the most delicate fruit are short lived," may afford a hint in regard to the difficulty of raising peaches.

[The explanation of the great prevalence of the *yellows* in Connecticut, lies, we imagine, in the fact of the large introduction of later years, of unhealthy trees, bought indiscriminately in the markets of New-York. A little attention to destroying every tree already affected, and introducing those of healthy constitution from other districts, will very soon result in the production of the finest fruit again, as has been abundantly proved in many parts of the State of New-York. *Chairman Gen. Fruit Com.*]

Pears.

This fruit seems to have been cultivated at New-Haven from a very early period of its settlement, as appears from several trees now standing, which bear fruit from year to year, and are known to be over two hundred years old.

Fifty or more years ago, there also appears to have been unusual attention given to this fruit, as there are a large number of trees scattered throughout the town, of about that age—more, probably, than can be found in any other in the State, but they are mostly of the old, and what are now considered, inferior sorts, such as the Pound Pear, Harvest, Sugar Top, Orange, Jonah, Winter Bell, Virgalieu, Bon Chretien and some others. These trees, however, in many instances, are turned to good account by having the new varieties engrafted upon them, to the number, in some cases, of twenty or more. The new sorts grow vigorously upon the old trees, producing fruit in from two to four years.

More recently, increasing attention has been given to this fruit, and many of the new and superior kinds have been introduced, for most of which we are indebted to our eastern friends, who have taken such honorable lead in procuring and disseminating new and valuable varieties.

In the list of pears found here, we rate them as follows : Skinless, good; Catharine, very good; Hubbard's Seedling, good; Ive's Seedling, good; Bloodgood, best; Doyenne d' Ete, best. These ripen with us the first week in August. The Doyenne d' Ete, on quince, is the best of them. Summer Bergamot, good; Sugar Top, good; Fine Gold of Summer, good; Rousselet Hatif, good; Dearborn's Seedling, best; Tyson, best; English Jargonelle, best; Windsor, good; Early Harvest, good; French Jargonelle, good for nothing with us; Julienne, best; Madeleine, very good; Edward's Citron, very good; Summer Franc Real, on quince very superior; Bartlett, best; Orange, good; Summer Bon Chretien, good.

Among our fall or autumn pears, Andrews is very good; Bleecker's Meadow, great bearer, some times very good; Beurre de Capiaumont, sometimes very good, ripe 1st Oct.; Beurre Brown, very good; Beurre Bosc, best; Beurre d' Amalis, good; Beurre Diel, best; Bezi de la Motte, good; Golden Beurre of Bilboa best, 1st Sept.; Gansel's Bergamot, sometimes best, 20 Sept.; Howell, best, 20 Sept.; Calhoun best, last Oct.; White Doyenne, not good; Henrietta, very good, 1st Sep.; Elizabeth, very good, Oct.; Flemish Beauty, best, Sept. 20; Louise Bonne de Jersey, best, Oct. 1st; Fondante d'Automne, best; Napoleon, very good; St. Ghislain, very good, Sept. 1; Seckel, best, Oct. 1; Van Mons Leon le Clerc, best, Oct. 1; Washington, good; Rushmore's Bon Chretien, good, Oct. 1; Duchesse d'Angoulême, best; Cushing's Melting, very good; Tea Pear, best, Sept. 1; Frederick of Wurtemberg, very good; Urbaniste, very good.

Among winter pears: Beurre d'Aremberg, best; Vicar of Winkfield, best; Easter Beurre, very good; St. Germain, (old) good; Prince's St. Germain, good; Winter Virgalieu or Colmar, good; Winter Bell, (sometimes weighing near two pounds,) very good for cooking; Jonah or Winter Franc Real, great bearer—good; Glout Morceau and Passe Colmar, not yet fruited; Columbia, good; Winter Nelis, best.

There are other foreign winter varieties, but not sufficiently tested to warrant an opinion.

A large number of seedling pears have originated in New-Haven and its neighboring towns—some of which have already been noticed in this report and are more or less known. It may be interesting to some present to hear something of others.

The late Gov. Edwards planted pear seeds about 30 years ago for the purpose of obtaining new varieties. There are now standing in the garden he cultivated 30 varieties named by himself. Some of them quite, and others nearly, first rate—such as the Citron, Calhoun, Dallas, Henrietta, Elizabeth, &c. The Edwards and Clay are the largest—they ripen in September and October.

The late Mr. Thos. Howell, whose garden is adjoining Gov. Edwards', followed his example and planted pear seeds—the result is, at least one first rate pear, viz: the Howell.

The "New-Haven Beauty" is very handsome, but not quite first rate. Another, a sweet pear, of good size, is excellent for baking. Some bore this season for the first time—others have not yet fruited. About 20 trees in all.

The Punderson pear is a great bearer and very good. There are seedlings by Dr. Totten worthy of notice. Also by Dr. Eli Ives, a large number—some of which are worthy of dissemination. At Whitneyville is a chance seedling—the Skinner pear. The Tea pear originated in Milford, the next town west of us, and is an excellent variety—ripe 1st September. White's seedling—also a new seedling by S. D. Pardee—of promise.

Fruit trees are with us transplanted with more care than formerly, and the operation is better understood, as well as its importance in reference to success. It is considered indispensable now with us to trench the ground where fruit trees are to be planted—that is, dig two spades deep—manuring freely, and mixing the whole thoroughly together—thus making a soil two feet deep.

The manures commonly used, are stable, peat, muck, oyster shell or stone lime, ashes, and the leaves or litter of the ground, all thrown together into a heap in the fall, making a compost which in the spring is in fine condition for use. Ground bone is also used, and guano. The latter is mostly in liquid form.

Quince stocks for pears, especially for the garden, are coming very much into favor. The fruit appears to be fairer, handsomer and better than when upon pear stocks. Pear trees with us appear to be entirely exempt from disease.

Quinces

Do well in our light soil, bear abundantly and the fruit is of large size, when the trees are regularly pruned and receive an annual top dressing of manure. The Orange or Apple, the Portugal and also the Pear shaped varieties are cultivated in Connecticut.

Grapes.

Almost every residence in our region has its grape vine and some have from 20 to 30. The Isabella and Catawba are the most common, and when planted where they receive some protection from cold, they amply repay the cultivation ; but if planted in the open ground without protection, they often fail. The Bland or Alexander, Shurtleff seedling, Missouri, Miller's Burgundy, Zinfindal and some others are also cultivated here in a few cases.

Foreign varieties under glass are not extensively cultivated. Where they are, however, good success and entire satisfaction have attended.

Apricots and Nectarines

are both cultivated. Very handsome specimens of which were shown at our weekly exhibitions this season. The former are in all cases trained to some building and have been noticed by your committee on the north, south and east sides, doing well in each aspect.

Apples.

Our report on this fruit, will, in order to make it more satisfactory, be entirely deferred till next year.

GEORGE GABRIEL,
A. S. MUNSON,
V. M. DOUW,
H. TERRY,
W. W. TURNER.

Committee for the State of Connecticut.

MAINE.

REPORT OF FRUIT COMMITTEE.

Pomology, with a few honorable exceptions, has as yet received but a small share of attention from the inhabitants of the state of Maine. In fact, the cultivation of choice fruits, till within a few years past, has been almost entirely neglected in by far the greater portion of our state, although we have very good soil, in all the varieties usually found in the other New-England States. Very many, if not most of the varieties of the apple, the plum, and the gooseberry, thrive with us, and may be safely cultivated, as our own experience has, at least partially, proved, in as great perfection as in other States of the Union; and many varieties are improved by being transplanted from other locations to this state. Some select varieties of the pear and cherry may be grown successfully with us, but our climate generally is not so congenial to the growing of these fruits as that of New-York or Massachusetts.

The quince has been cultivated even in great perfection by some individuals on the Kennebec river; but in other parts of our state the effort has not been attended with the same success.

The cultivation of the peach has also proved a failure, excepting in a few instances where the location is very favorable; but we are confident it is not suited to the rigors of our climate.

We are inclined to believe some hardy and very early varieties of the grape may be cultivated with success. We need a longer season to ripen this fruit. The English Gooseberry thrives with us admirably, and probably in greater perfection than in other states; and is generally very free from mildew. Two of your committee cultivate about fifty varieties of this berry. The fruit of some kinds attained a very large size, being four inches in circumference, and of first rate flavor. We would respectfully call the attention of the citizens of *our State* to this fruit as it is well suited to it.

We find ashes and meadow muck, pounded bones and horn shavings to be highly valuable as manures for trees and shrubs, to be used as recommended by Mr. Downing in several numbers of the "Horticulturist," particularly for the year past.

Until we have more experience it is not our design to extend our remarks, (especially in this our first report,) further than to comply

with the solicitations of some of our citizens of Maine, in giving the names of a few such fruits as experience has indicated to be best suited to our climate, and such as are worthy of general cultivation in the most northern State in the Union.

Apples.

Bell's Early, Early Sweet Bough, William's Favorite, Gravenstein, Porter, Red Astrachan, Danvers Winter Sweet, Golden or Orange Sweet, Tallman's Sweet, Ribston Pippin, R. I. Greening, Roxbury Russett, Duchess of Oldenberg, Baldwin, Fameuse.

Pears.

Dearborn's Seedling, Seckel, Flemish Beauty, Heathcot, Louise Bonne de Jersey, Golden Beurre of Bilboa, Vicar of Winkfield, McLaughlin, Frederick of Wurtemberg, Glout Morceau, Beurre d'Arenberg, Winter Nelis, Fulton, Belle Lucrative and Rostiezer.

Plums

Jefferson, Green Gage, Washington, Imperial Gage, Purple Gage, Purple Favorite, McLaughlin, Lombard, Imperial Ottoman, Frost Gage, Columbia, Bleecker's Gage, and for preserving, the White Magnum Bonum, Smith's Orleans, Diapree Rouge, American Yellow Gage.

Cherries.

May Duke, Downer's Late, Black Eagle, Elton, Downton, Honey Heart.

Gooseberries.

Red Warrington, Crown Bob, Whitesmith, Green Walnut, Red Champagne, Yellow Champagne, Early Green Hairy, Heart of Oak, Houghton's Seedling, Keen's Seedling, Green Gage, White Honey, Rifleman, Bright Venus, Early Sulphur, Yellow Ball, Smiling Beauty, and Green Laurel.

All which is respectfully submitted.

HENRY LITTLE,
S. L. GOODALE.

OHIO.

REPORT OF A. McINTOSH.

To A. J. DOWNING, Esq.,

Chairman of General Fruit Committee.

In consequence of the general failure of the fruit crop this year throughout the State, but little opportunity has presented for carrying out the views of the Congress. It was the intention of our committee to have met during the season at different places in the State, for the purpose of examining, comparing and testing the various fruits of each locality, observing the character of the soil, system of cultivation, process of manuring, mode of culture, &c. In any ordinary season this course would have ensured the collection of many valuable statistics. It is hoped that another year will supply this desideratum, and enable the committee to lay before Congress whatever interesting evidence can be drawn from the productions of our fertile soil and genial climate, as well as from the experience of our many intelligent, practical horticulturists. Owing to this unprecedented scarcity of fruit, the exhibitions of our local societies have been less interesting than usual, and the committee do not deem it advisable to attempt a general report for the State. They will await another year's experiment before proceeding to pass judgment on the many inferior or worthless kinds of fruit that are still extensively cultivated.

In the tables and remarks that follow, the responsibility for accuracy rests with the undersigned alone, and his opinions are based on careful observation and actual experience in northern Ohio, and may not be applicable to all sections of the State. It is, however, proper to remark, that these views are approved of by the distinguished and intelligent officers and members of the Cleveland Horticultural Society.

I proceed to classify, in the manner recommended by you, certain varieties of fruit, omitting all such as seem to require farther time and testing, to determine their proper merit :

APPLES.

<i>Good.</i>	<i>Very good.</i>	<i>Best.</i>
Bough Large Early,	Summer Rose,	Early Harvest,
Red Astrachan,	Porter,	Gravenstein,
Summer Queen,	Rambo,	Fall Pippin,
Jonathan,	Strawberry, Autumn,	Belmont,
Roxbury Russet,	Rh. Island Greening,	Swaar,
Red Seeknofurther.	Yellow Belle-Fleur,	Esopus Spitzenburg,
	Lady Apple.	Early Strawberry.

Were my selection limited to a single variety, I should prefer the Belmont.

PEARS.

<i>Good.</i>	<i>Very good.</i>	<i>Best.</i>
Napoleon,	Louise Bonne de Jer-	Seckel,
Frederic of Wurtem-	sey, on Quince stock,	Stevens' Genesee,
burg.	Doyenne White, do,	Madeleine,
	Bartlett,	Winter Nelis,
	Bloodgood,	Dearborn's Seedling,
	Beurre Diel,	on Quince stock
	Duchesse d'Angculeme,	
	on Quince stock,	
	Marie Louise, do.	

For a single variety, I prefer the Bartlett.

CHERRIES.

<i>Good.</i>	<i>Very Good.</i>	<i>Best.</i>
Napoleon,	Elton,	Belle de Choisy,
Tradescant's Bl'k heart,	Black Eagle,	Bigarreau,
May Duke,	Knight's Early Black,	Black Tartarian,
American Heart,	Amber.	Downer's late Red.
Black Heart.		

Best single variety, Black Tartarian.

There are several other varieties including some seedlings, that give promise of excellence, but farther probation is required before their just rank can be assigned them

PEACHES.

<i>Good.</i>	<i>Very Good.</i>	<i>Best.</i>
Early Ann, Red & yellow rareripe, Admirable cling, Old Newington cling.	President, Cable's Early Melocoton.	Early Tillotson, Yellow Alberge, Morris Red Rareripe, Early York, Malta.

PLUMS.

Owing to the continued ravages of the curculio, but little has been accomplished in the cultivation of this fruit. The Jefferson, Green Gage, Columbia and some others produce well; but the specimens hitherto produced do not warrant a definite judgment. The following have been fully tested. Washington (best), Smith's Orleans and Drap d'Or, (very good), *Imperial Gage*, (good), *Coe's Golden Drop*, good, but too late for this section.

APRICOTS.

Breda, (good) Moorpark, (very good), Hemskirke and Peach, (best), are the only ones that have been fully tested.

GRAPES.

The best hardy varieties are the Catawba, Isabella and Miller's Burgundy.

STRAWBERRIES.

<i>Best.</i>	<i>Very Good.</i>	<i>Good.</i>
Hovey's seedling, Burr's seedling.	Grove End Scarlet, Willey's.	Ross' Phœnix, Iowa.

The two most formidable enemies (after the curculio) which fruit growers have to encounter are the *Rose Bug* and the *Slug*. The first made a terrible onslaught upon the cherry trees, greedily devouring whatever fruit there was. So thorough was the devastation that scarcely a perfect cherry was matured this season. The *Slug*, however, has proved a far more destructive foe. In some localities his ravages have been dreadful, principally among the cherry and pear trees. Thousands of trees have been stripped of their entire foliage, and will hardly survive the shock. Numerous remedies have been tried, and with various success. A mixture of tobacco juice and

strong whale-oil soap suds, was effectually used on the bug. Ashes, slacked lime and dry dirt, have measurably succeeded in displacing the slug.

I will add that numerous Horticultural Societies have been formed in the State and give promise of great usefulness in diffusing information and forming correct taste in relation to the culture of fruit. The three most prominent of them are located at Cincinnati, Columbus, Dayton and Cleveland, cities, southern, central and northern, soon to be connected by railroad which will greatly facilitate interchanges between them, and enable these societies to collect, examine and compare fruit at all seasons of the year. These societies embrace very many of our intelligent and most practical pomologists, and from their direct, friendly, zealous and determined co-operation, the American Congress may in future years expect much valuable aid.

All which is respectfully submitted.

A. McINTOSH.

Cleveland, Ohio, Sept. 22, 1849.

MISSOURI.

REPORT OF THE FRUIT COMMITTEE.

Owing to the raging of the cholera, and the absence from home of some of the members of the Committee, a meeting was not held until the 12th of October, 1849.

At this meeting the outlines of the following brief report were agreed upon, and the chairman requested to transmit the same to the chairman of the General Fruit Committee.

The natural soil of this part of the country is a black vegetable mould, of perhaps six inches average depth, lying upon a sub-soil of yellow clay, under which lies a bluish limestone. Upon this soil superior crops of various fruits have been produced. The bottom lands of the rivers, made of alluvial soil, have also been tried, and though they produce tolerably well, yet the fruit crops are deemed inferior, and the trees are believed to be short-lived.

The Committee are not aware that the superior crops of fruit which have been grown are attributable to any particular kind or system of manuring. Lime and ashes, however, have been applied

with beneficial effects, and the necessity of keeping the orchard ground in good tilth is very apparent. In young orchards it is deemed highly important to cultivate hoed crops for the first five or six years.

The most profitable market fruits of good quality which appear in this market, as yet, are as follows :

Apples.—Summer—Early Red Margaret, Early Harvest.

Autumn—Rambo, White Belle Fleur, Porter.

Winter.—Rawles Janet, Green Newtown Pippin, Vandervere, Peck's Pleasant.

Pears.—This fruit is so subject to blight, that, at present, almost any variety, which succeeds, is profitable.

Peaches.—A great variety is produced here, and the trees succeed admirably, when kept clear of the worm. The crop, however, is liable to fail in part from frosts. Among the most profitable of the standard varieties are the Early York, Late Admirable, Incomparable, Morris' Red and White, Heath, Washington Cling, Lemon Clingstone, Grosse Mignonne, &c. Some very excellent seedlings are favorites here, and some varieties grow to great size.

Plums.—The trees are short-lived, and the fruit invariably taken by the curculio. The same may be said of the Nectarines and Apricots.

Cherries.—The Duke and Morello cherries do very well, but the finer varieties of sweet or heart cherries cannot be said to succeed satisfactorily. The trees grow too rapidly, and after a few years burst their bark, and are seriously injured.

Quinces.—The climate seems too hot for this fruit, and the trees are very subject to the borer and to insect blight. Small crops only are obtained.

The list of varieties, especially of apples, which have been tried and condemned, would be large. We may remark that many of the best varieties of fruits of the east, change their character here. As, for example, the Rhode Island Greening becomes an ordinary fall apple; the Jonathan becomes a good fall apple, and so of the Boston Russett, and others.

The best *grape* yet cultivated for wine, is the Catawba. This is cultivated to a considerable extent in different parts of the State, and produces a wine resembling Hock. This, however is not deemed satisfactory, and efforts are making to produce new varieties from the seed. Foreign grapes do not succeed in the open air.

The American Black is considered one of the best of the *Raspberries* cultivated here. Some of the native reds do very well, but are not remarkable for their productiveness or flavor. The Antwerps do not succeed well. The Fastolf has been recently introduced. A species of "Cane" raspberry bears very well.

Of *Currants*, the White and Red Dutch, when properly situated and cultivated, grow to a large size, bear good crops, and ripen the last of June or early in July.

Gooseberries mildew.

Of *Strawberries*, there are many varieties cultivated here, of which a sort of Pine, possibly the "Old Pine," is most popular with many of those who grow for market. With some, Hovey's Seedling, planted with the Iowa male, produces satisfactory crops.

We annex the following brief table of apples in conformity with the arrangement suggested by the chairman of the General Fruit Committee. There are a great many other varieties cultivated here, some of which, though "best" at the east, are not esteemed as even "good" here, and there are many varieties also, which are yet under trial, and with which we have not had sufficient experience, as the "Cooper," "Putnam Russett," &c., &c.

APPLES.

<i>Good.</i>	<i>Very good.</i>	<i>Best.</i>
Summer Queen,	Large Yellow Bough,	Early Harvest,
Red Astrachan,	Fall Pippin,	Early Red Margaret,
Holland Pippin,	Porter,	Rambo,
Seeknofurther,	Baldwin (Early Winter),	Green Newtown Pippin,
Golden Pippin,	White Belle-Fleur,(Fall)	Rawle's Janet.
Peck's Pleasant,	Jonathan, (Fall,)	
Vandervere.	Priestly.	

The committee are agreed that if they were to plant here but three varieties of apple, one for each season, they would be Early Red Margaret, Rambo, and Rawle's Janet or Janating, as it is usually called here. The peculiar qualities of the latter are, late blooming, great and certain productiveness, good flavor and long keeping.

A new winter apple produced here, called the "Golden Seedling," is deemed good. There are several other new varieties, confined to particular localities, which are esteemed very good.

We have not made up a table of pears, because we fear the blight will scarcely leave a tree living in the country. Some excellent

crops, however, have been produced of the White Doyenné, the Seckel, the Bartlett, and some varieties grown by the old French inhabitants,—names not known. A new variety resembling the Seckel, but of large size, has been produced in this vicinity, and is called “Mitchell’s Russet.” All of which is respectfully submitted.

THO. ALLEN,
LEWIS BISSELL,
E. MALLENCHRODT,
N. REIHL.

St. Louis, Oct. 12, 1849.

IOWA.

REPORT OF FRUIT COMMITTEE.

DAVENPORT, *Sept. 13, 1849.*

A. J. DOWNING, Esq., *Chairman, &c., Newburgh, N. Y.:*

The committee for the State of Iowa, from their remote positions from each other in different parts of the State, are unable to make a special report. What I shall have to say, please regard as the crude opinions of the chairman, gathered from his limited experience and conversations with the best fruit growers in middle Iowa.

The natural soil of all Iowa is a black mould, of a depth varying from twelve to even thirty-six inches. This mould is intermixed with sand and clay, in varying proportions; sometimes the sand predominates, and renders the ground easily tilled, and in wet seasons exceedingly productive. Sometimes the clay predominates and makes a stiff mould, difficult to work, but when well worked, exceedingly productive. The sub-soil is usually clay, though strata occur of sand, and sand and gravel. Universal observation, wherever apples have been tried over the whole State, concurs in opinion that they can be successfully cultivated, and both for quality and size are equal to any in the Union. The quality of peaches when they hit, is first rate, but they are a very uncertain crop. Pears and plums are sufficiently cultivated to know that excellent can be produced from our soil, if we can make the trees live in it, and they are no more liable to disease here than all over the west. Cherries of good quality, we

must acknowledge, that thus far we cannot produce. The common Red Cherry grows strongly, is very hardy, and has a small sour fruit of little value. All other kinds have winter killed, and some of our nurserymen have abandoned their culture.

We find great difficulty in ascertaining what fruits we grow. We are overrun with local names and seedlings, and false kinds without number have been palmed on us.

To return to particular fruits, which have known names, and have been tried in this vicinity.

APPLES.

Early Harvest, propagated under the name of "Tart Bough?" quality, size and growth of trees corresponds with our standard, Downing's fruits, and is the best early dessert apple known.

Red Astrachan.—First rate for cooking; rather tart for the dessert; the tree a vigorous grower, with a most beautiful round head. Dr. Weed, of Bloomington, says, "the handsomest apple I have ever seen."

Rambo.—Fruit and tree in every respect first rate.

Yellow N. Pippin and Rhode Island Greening.—So far as tried have proved very satisfactory.

Yellow Belle Fleur.—Fruit large, quality best; tree vigorous grower, and early bearer. It succeeds admirably.

Romanite.—A very large red apple, of fine flavor from Dec. 1st to Feb. 1st; is extensively cultivated in central and southern Illinois, under this name, and has found its way here. This is not its true name. It is a good apple in its season for the dessert; but it soon becomes mealy.

The best market apple west of Indiana is, without doubt, the Janating, or Rawle's Janat. For rich flavor and productiveness, it cannot be surpassed. It is rather below the medium size, to which some persons, without good reason, object.

Pears.—Our experience is limited, but the Bartlett has borne the palm from the others tried here. Seedlings grow very rapidly in this climate. One, in this town, made a growth in its main stem, of eight feet in height last year, after being transplanted in the spring.

The best grapes for garden culture here are the Catawba and Isabella.

Raspberries, gooseberries and currants, all do well in this climate.

The canes of the Red Antwerp raspberry are winter killed unless protected.

Apricots, nectarines, and quinces grow rapidly, but have not borne fruit long enough with us to be tested.

We have two horticultural societies, one in middle and the other in southern Iowa. Their influence will make a great advance in the cultivation of fruits in Iowa, and in another year, you may expect reports from both.

In great haste, your ob't serv't,

JA'S GRANT,
Chairman Com., Iowa.

KENTUCKY.

[We extract the following hint, which has the promise of usefulness in it, from a letter addressed to the Convention by the chairman of the committee for Ky. *Chairman Gen. Fruit Com.*]

Not a single incident has occurred, within the range of my observation, in any degree interesting to the cause of the cultivator, unless it should be some trial made by myself with lime in preventing the ravages of the Curculio on smooth skinned fruits, the result of which I have reported to the Massachusetts Horticultural Society, and of lime, also, as a destroyer of the tetter of *cocci*, or white scale insects, which infest the Orange family and the Oleander. A few trees of oranges and lemons, which have for a long time been disfigured and enfeebled by myriads of *cocci*, were last fall so completely dusted with lime as to seem white-washed in every part; and the adhesive property of lime kept them white, notwithstanding the action of the syringe during winter. The result was an entire destruction of every coccus—to the extent that none have since appeared. The trees are in great vigor, but I will not undertake to determine how much that vigor is lessened or increased by the action of lime on the leaves and branches.

Very respectfully, yours,
L. YOUNG,

Chairman of Fruit Committee, For State of Kentucky.

DISTRICT OF COLUMBIA.

REPORT OF COMMITTEE.

The undersigned chairman of the committee on Fruits for the District of Columbia respectfully submits the following report to the consideration of the Congress of Fruit-growers.

The committee regret to say that little has been done by them to carry out the purpose intended by their appointment. Owing to the great failure of fruit this season, it was thought but little information could be obtained either satisfactory to the committee or useful to the community at large ; but your committee assure the Congress that the importance of the subject is duly appreciated by those who have had the honor to be selected, as well as by the citizens of the District of Columbia generally, and with great pleasure report that they have received the assurance of a hearty co-operation from most of the fruit growers, and trust that when a more propitious season will allow it, they will be enabled to add at least a mite to the mass of highly important information which your labors will be sure to collect.

The failure of fruit in this District this season is mainly owing to the heavy frosts about the time the trees were coming into bloom. The peach seems to be the most important failure here on account of the great extent to which we have embarked in its cultivation as a crop for the supply of our own and the neighboring markets. Some few facts have come under the observation of your committee, which though they may be generally known to the practiced cultivator or to the man of observation, yet may not be wholly uninteresting to some of the community.

Your committee allude to the exemption of the peach and other fruits from the fatal effect of the frost in some particular localities, amid the almost total destruction around. It appears evident to this committee that the main cause of this exemption is to be referred to the comparative *elevation* of those localities above the surrounding country. If the frost be light the orchards on the low grounds or bottoms only fail, whilst all others escape, and in proportion as the cold increases the effect reaches to the higher ground, gradually extending upwards; but such is the effect produced by the upward tendency of heat and the consequent settling of cold growing out of the difference in their specific

gravity. Frost at this season of the year, seldom reaches the points of much elevation. In this neighborhood we have situations that almost invariably escape. Such has been the lot of the orchard of Mr. GEORGE W. RIGGS, one of your committee. In 1847 his crop was abundant, whilst the orchards immediately around him had scarcely a peach, and most of them not a solitary one. In the orchard of Mr. CAMMOCK, another successful cultivator, on another elevated ridge, the effect was the same. In his orchard though the difference between the highest and lowest points could not have been more than 25 to 30 feet, yet the difference could be traced in almost every row of trees and on those in the lowest places scarcely a peach could be found.

Mr. CAMMOCK reports that particular sorts, from some constitutional cause, seemed to be more exempt or more hardy than others, yet the difference in the different points of elevation was equally evident among those as among other sorts.

The different orchards throughout this section, have been affected the present season almost universally in the same way as in 1847; and though the committee have no means now of ascertaining the comparative state of the thermometer at any given point between the two seasons, yet they are of opinion that the cold of this year was greater than that of 1847.

As an illustration of the difference of cold in points of different elevation, observations made at two different points in the grounds by the chairman of the committee are here introduced.

A. D. 1835* Jan. 8th, 20 min. before sunrise, top of hill, 4 deg. below zero.

A. D. 1835 Jan. 8th, 20 min. before sunrise, bottom of the hill, $18\frac{1}{2}$ deg. below zero. Difference $14\frac{1}{2}$ deg.

A. D. 1835, Jan. 9th, same time, top of hill, 12 deg. below zero.

bottom do, $15\frac{3}{4}$ do

difference $3\frac{3}{4}$ deg.

Jan. 10th, same time, top of hill, 2 deg. above zero.

bottom do, $7\frac{1}{2}$ below

difference $9\frac{1}{2}$ deg.

The highest of the two points where the observations were made was the spot on which his house stands, 120 feet higher than the other point, and only 400 yards distant from it. The house stands at a point far below the elevation of much of the surrounding country, and

* This was "the cold winter."

had an observation been taken at higher points, no doubt the difference would have been greater. The astonishing difference of $14\frac{1}{2}$ deg. at a distance of only 400 yards can only be accounted for by the extreme stillness of the night, and the total absence of the least motion in the air. Had there been such motion, the result could not have been the same, as was fairly tested by observation made during the high winds of Feb. 7, 8 and 9, in the same year, when not a quarter of a degree of difference could be perceived at the two points, and what is also somewhat remarkable, the thermometer did not fall below $1\frac{1}{2}$ degrees above zero, though owing to a strong current of wind, it was generally thought to be the most severely cold weather ever experienced here, and so long was the continuance and so strong the current that the cold was carried south so as to destroy the orange trees near St. Augustine and even to affect the coffee trees in the West Indies.

While the winds continue to blow, but little danger is to be apprehended, but as they subside the cold concentrates in the lower places, and the fruit in such places is consequently destroyed. There are other causes which may produce the like effects in other localities, such as the heat arising from large bodies of water, which cannot be cooled down by a few days current of wind from the northwest, and having a higher temperature within them than the surrounding air. As soon as the winds subside the heat naturally arising from the water must tend to check the cold, and it must be obvious that a few degrees of heat only are required to protect the fruit. Where the winds pass over a sheet of water for two or three miles in length, when they subside there is only a gentle wafting of the warmth that arises from it, just sufficient to create the desired effect. Such was the situation of the orchard of Mr. Cromwell, near Baltimore, Md., long known as the unrivalled "peach king" of that city. On a visit of Mr. Claerman, of this committee, to his orchard, about the year 1834, he was assured that he cared no more for frost than he did what sort of weather he had the year before; the only effect it had was to insure him a good price for his peaches, as it had created a scarcity elsewhere, but did no injury to his crop.

From the foregoing facts your committee take the liberty to suggest to those who possess such situations, to embark largely in peach culture, as a crop, when there is a failure in other places, is worth more than half a dozen crops of ordinary seasons, and should that

failure occur only once in seven years, they will find themselves amply compensated.

In the course of our enquiries into these matters, other suggestions with regard to protection against frost, have been presented to your committee, but they do not deem them of sufficient importance to be now presented to this Congress.

Your committee must further state that the almost incredible improvement produced by judicious cultivation on the Peach and Strawberry, coming under their immediate notice, as such, they cannot with propriety pass them by in silence. In the orchard of Mr. Geo. W. Riggs, the system of shortening in and thinning by hand, with the application of manure and a free use of the plough, have produced such improvement in his crop of peaches, that during the glut in our market in 1848, when a great portion of the fruit could not be consumed, his peaches found regular purchasers at two dollars per basket, whilst the average price did not exceed 25 to 40 cents per basket.

Your committee are of opinion that whenever the system is properly pursued, the labor and expense will meet an ample remuneration.

It is also a well known fact, that whilst bushels of strawberries are to be had in our market at 6 to 8 cents per quart, some cultivators have been able to get 50 cents per quart for the finest specimens.

JOSHUA PIERCE,

Chairman of the committee of the District of Columbia.

. VIRGINIA.

REPORT OF YARDLEY TAYLOR.

Loudon County, Va., 9th mo. 18th, 1849.

Not being able myself to attend the sittings of the Congress of Fruit Growers this year, I still feel a deep interest in its proceedings, and am willing to aid, as far as I am able, the objects of the Convention. One of these objects, and a very important one to nurserymen and fruit growers, is the knowledge of the best varieties suited to *particular localities*, or for general cultivation. This part of Virginia is about latitude 39° 10'', and in elevation about 500 feet above tide.

The western half of this county is included within the branches of the Blue Ridge range of mountains, which is a continuation of the Highlands of New-York. In geological position, it lies between the granite and lower secondary formations, including gneiss, the several varieties of the slates and their combinations, interspersed with hornblende and quartz, and on the mountain ranges, epidote with chlorite slate. The whole forming a silicio-argillaceous soil, well adapted to the cultivation of grain, grass crops, and fruit trees.

But little attention has hitherto been paid to the cultivation of the latter here, as no market exists of much value for fresh fruit. More attention is now being paid to their cultivation than formerly, as many are beginning to find out that they might as well have good fruit as the indifferent kinds they are accustomed to. Of the varieties reported last year, we have the Early Harvest, Large Yellow Bough, Fall Pippin, Yellow Belle-Fleur and Newtown Pippin; all good in their season, but ripening here earlier than farther north, and this season more so than usual, owing to the very dry summer. The Belle-Fleur Apple is now ripe and falling from the trees. Of fruits discussed in Convention, the Smoke-house is here considered good. We have some varieties here not generally known at the north, five of which are described in the Farmer's Encyclopedia of Agriculture, by Professor Johnson, Philadelphia edition, 1844, article Malus, section Southern Apples, viz: Prior's Red and Rawle's Janet; the latter known here as the Rock-Renmor or Hereford's Streak, and is, probably, identical or similar to Downing's Borsdorffer.

The great desideratum here is, to procure varieties that are good keeping apples; many of those from the north, particularly New England, so far as our experience yet goes, will not here be late keeping varieties. They ripen too early to keep well. We had probably better look more to the south for winter fruit. There are some varieties in this county that bid fair to be valuable as long keepers with us, that originated south of James river in Virginia. I propose, at some future time, to bring them to the notice of the Convention, as well as some other varieties in cultivation, but am not prepared at present.

Peaches succeed well here. It is no uncommon thing to see trees 30 or 40 years old. The yellows occasionally are seen, and where no efforts are made to extirpate those that are affected, the disease has in some places destroyed many trees; but where pains have been taken

to prevent it, the disease seldom appears. In comparing the time of ripening with Downing's work where the varieties are recognized, they ripen 10 or 12 days earlier than at Newburgh, or New-York.

Of Pears, Plums and Cherries, so little has been done here, that little can be said respecting them ; but they are beginning to be cultivated, and after a few years experience we may be able to report progress.

YARDLEY TAYLOR.

B. PARSONS, *Secretary of the
American Congress of Fruit Growers.*

GEORGIA.

REPORT OF WM. A. WHITE.

MARSHALL P. WILDER, Esq.,

President of National Convention of Fruit Growers :

DEAR SIR :—I enclose herewith lists of fruits which have been tried with us in Athens, Georgia, and found fully to sustain their character, as described in Downing's work on Fruits. These varieties have been fully tested in the grounds of M. A. Ward, M. D., and in those of the late James Camak, Esq., former editor of the Southern Cultivator. A severe frost with us, in April, the present year, after the fruit had set, prevented us from having the first trial of many celebrated fruits not in these lists, which this year gave for the first time promise of bearing.

Apples.—Nearly all the best northern fruits have been tried with us, and they almost without exception sustain their character for excellence ; but our seasons are so long that all the winter fruits ripen off early in the fall. We have but one apple that will keep well into the winter. This is the Virginia Greening, first described by G. B. Hapgood, in the Southern Cultivator, whose description I copy.

Virginia Greening—Medium size, green color, with dark, clouded spots ; matures late, keeps well till spring, and even into summer, in this climate ; subject to fewer failures than most other apples ; tree an early and good bearer, and not liable to disease ; flesh tender, quite juicy, early in the season, but grows dryer and tougher in spring.

Apricots.—Our best Apricot is “Ringold’s Oglethorpe,” of which the stone was brought from Italy, by the Hon. R. H. Wilde. The frost prevents a description of it this year. The Breda, Moorpark, and Peach, all prove excellent with us, the White Masculine is better than described, while the Roman is so large, and the quality so good that we consider it very little inferior to the best. The only difficulty in raising this fruit arises from the curculio.

Cherries.—We can raise none with any profit except the Kentish, Morello and Mayduke.

Figs.—Of the varieties cultivated few are named; but of these we consider the *Celestial* as the very best.

Grapes.—The Warrenton is our best grape. Next the Isabella and Catawba, but all kinds are subject to rot, except the Scuppernong. The latter, from the thickness of the skin and the pulpy nature of the fruit is inferior to the others. It is, however, very free from disease

Nectarines.—Not fully tested yet, the varieties most celebrated have been introduced.

Peaches.—Of these we have tried the following kinds, and know them to be of first quality in our climate. Indeed most peaches here fully sustain their character for excellence. We have found these excellent here; viz: Belle de Vitry, Cooledge’s Favorite, Crawford’s Early Melocoton, Crawford’s Late do, Early Tillotson, Early York, Admirable, George IV, Grosse Mignonne, Heath, Late Admirable, Lemon Cling, Madeleine de Courson, Malta, Morris White, Rareripe, Noblesse, Oldmixon Free, President, Red Rareripe, Royal George, Tippecanoe and “Incomparable Admirable.”

Pears.—The Seckel retains fully its excellent quality; it grows two or three times its usual size with you, yet one has only to taste them to be sure they are the genuine Seckel. The Dix sustains its excellent quality, but the tree blights more than any other. The White Doyenné is free from diseases both of the tree and fruit, the latter being fully equal to the best grown at the north. The Beurré Diel has met a congenial climate; its quality goes even beyond the description in Downing. As our winter pears, except two native varieties, ripen in November, the Black Worcester proves an acceptable eating pear, as under our mild climate its quality is improved. The Franklin County Pear and the Lucky Pear, are two kinds native with us, of excellent quality, keeping later than any others. As the frost

has prevented us from obtaining accurate descriptions this year, we will supply the deficiency next season.

I add the entire list of pears found of first quality, so far as we have tested, viz: Andrews, Bartlett, Beurre d' Amaulis, (nearly first rate,) Beurre de Ranz, Beurre Bosc, Beurre Diel, Bloodgood, Brown Beurre, Dearborn's Seedling, Duchesse d'Angouleme, Dix, Easter Beurre, Flemish Beauty, Fondante d'Automne, Frederick de Wurtemberg, Glout Morceau, Golden Beurre of Bilboa, Gray Doyenné, Jaminette, Louise Bonne de Jersey, Madeleine, Marie Louise, Passe Colmar, Seckel, St. Ghislain, Stevens' Genesee, Surpasse Virgalieu, Van Mons Leon le Clerc, White Doyenne, and Winter Nelis.

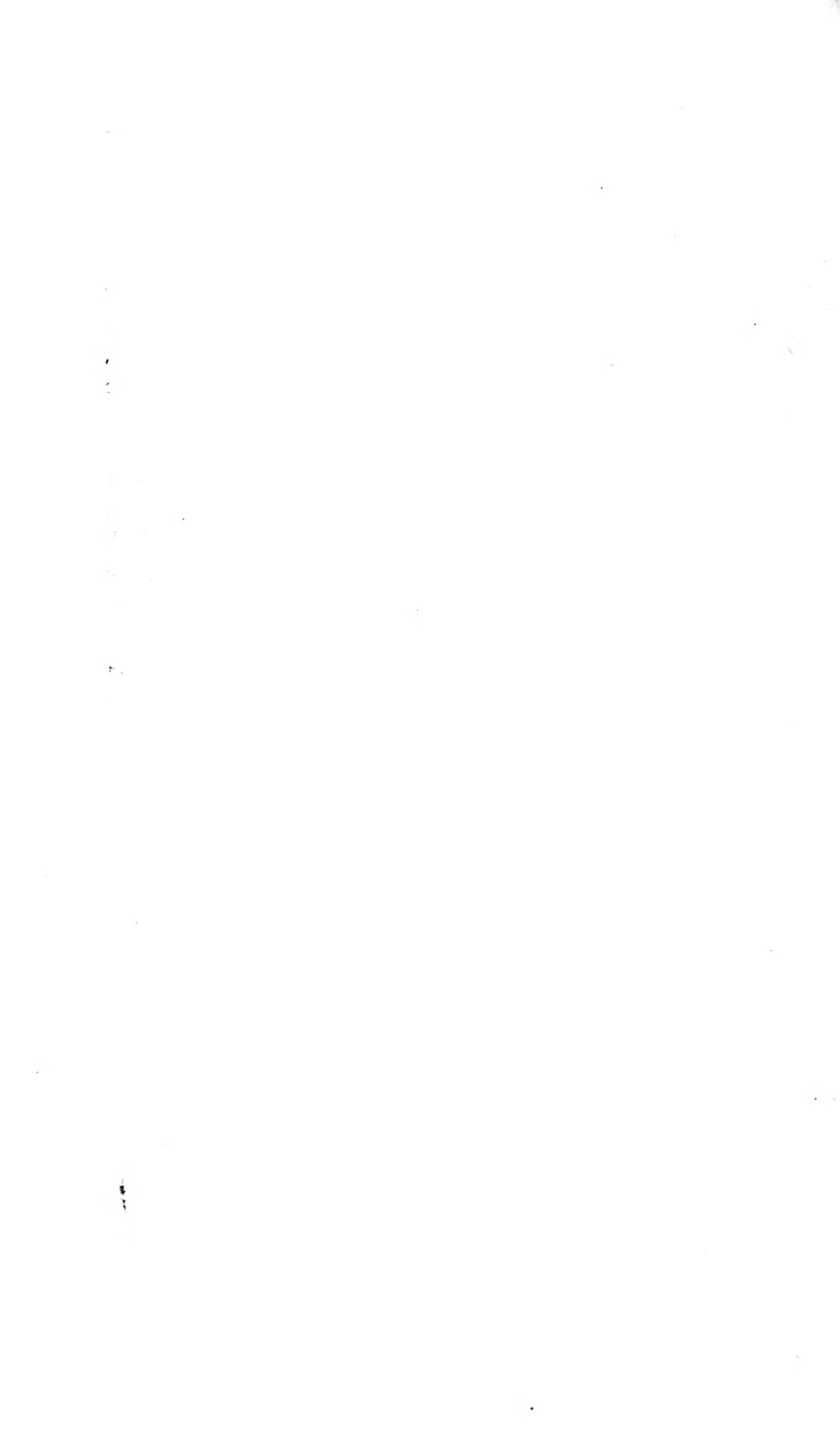
Plums.—Our best *early* plum was raised by Mr. Camak from a stone brought from Italy by Hon. Richard Henry Wilde. We call it Wild's Plum. It is of the size of Imperial Gage; color, greenish yellow, and a clingstone. The Green Gage retains its excellence with us, but the tree proves a shy bearer. The great enemy to the plum with us, as elsewhere, is the curculio. The following have been tested, and found to equal Mr. Downing's description in all desirable points, viz: Bingham, Coe's Golden Drop, Frost Gage, German Prune, Huling's Superb, Imperial Gage, Jefferson, Lawrence's Favorite, Large Green Drying, Smith's Orleans, Washington, and Brevoort's Purple.

If the foregoing may in any degree promote the objects of the Convention, I shall be gratified to have made this communication.

Yours very respectfully,

WM. N. WHITE.

Athens, Ga.



COMMUNICATION FROM E. MERIAM, ESQ.

ADONIRAM CHANDLER, ESQ.,

Cor. Secretary, American Institute :

Dear Sir—Among the many subjects that have been brought to the notice of the American Institute, there are none more interesting than facts which illustrate the harmonies of our atmosphere as developed in the changes of temperature, which convert fluids to solids and solids to fluids.

The sudden and great changes of temperature from cold to heat and heat to cold, have by many been supposed to exert an injurious effect upon health ; but my close and long continued research into the harmonies of our atmosphere, and into the causes which produce great and sudden changes, has satisfied my mind that sudden and great changes of temperature are beneficial to the health of man instead of being an injury.

Franconia, a town situate on the Ammonoosuc river, near the White Mountains of New Hampshire, is subject to the most frequent, the greatest and the most sudden changes of temperature, and notwithstanding this, its inhabitants are more healthy and live to a greater age than persons residing where the temperature is more uniform.

These great changes are often independent of solar influence, hence we find at Franconia the temperature on the first day of January, 1848, at 9 P. M., at 58° , and at the same place on the morning of June first at sunrise, the temperature was 34° , and next morning fell to 28° , being 30° colder on the second day of June than on the first day of January.

In 1849, on the 13th of July, at noon, the temperature at Franconia rose to 103° in the shade, and on the morning of the 16th, at sunrise, was down to 35° , at noon 40° , and 38° at 9 P. M., being a change of 68° in three days.

In my examinations of the meteorological records, kept at West Granville, on the bank of Pawlet river, which discharges its waters towards the Gulf of the St. Lawrence, I found the temperature on the first of January, 1848, and the first and second of June of that year, and also that of July 13 and 16 of 1849, to correspond with that of Franconia.

In April, 1849, a destructive frost was experienced throughout a great extent of surface in the Northern Hemisphere; on the 15th and 16th, the cold was severe, and snow fell in many places. In my examination of the meteorological records at Granville, I found that the cold term filled the first section of a circle of 360 hours, having a duration of 45 hours, or one-eighth of the circle, during which the temperature of the air was at and below the freezing point. This is the most southern latitude in which I have been enabled to discover the existence of a cold cycle in the month of April.

The great fire in the city of New-York, on Dec. 16, 1835, occurred during a period of intense cold, and in my examination of the meteorological records kept at Granville, I found that a cold cycle existed there of 180 hours, being four sections, or eights, of the circle of 360 hours. In my examination of the meteorological records kept at Gouveneur, St. Lawrence county, N. Y., I found on the morning of the 17th of Dec., 1835, that the temperature was 40° below zero, and the mercury congealed.

In the month of February, 1848, in computing the number of hours of the month of January of that year, during which the temperature was at and below the freezing point, I discovered a term of 90 consecutive hours during which the atmospheric temperature was at and below the freezing point; and on a further examination, I found a like term of 90 hours in the month of December, 1847, and two terms of the same length in February, 1848. With this beginning, I set out on a new path of travel in the meteorological field, in which I have been eminently successful.

In March, 1848, there were three cold cycles—two of these were of 90 hours duration, and the other of 45 hours, or half of 90.

In the winter of 1848 and '49, nature was very instructive to me. A cold cycle commenced on the 31st day of December, between the hours of 5 and 6 P. M., and continued till between 7 and 8 P. M., of January 13th, being a term of 315 hours, or seven eighths of the great circle of 360 hours. When this cycle terminated, the Aurora lighted up the north, a rain-storm commenced which extended simultaneously over an extensive portion of the Northern Hemisphere. The same night the city of Vienna, in Austria, was visited by a fearful storm of thunder, lightning, wind and rain, tearing up the ice in the rivers of Europe, and carrying dismay and destruction in its path. On comparing my records of temperature, which are made hourly during the continuance of this cycle, with those of North Salem, Westchester county, New-York, Franconia, N. H., and Granville, N. Y., I found an agreement; the cycle having filled the same term at each of those places.

On the 5th of February, 1849, between 5 and 6 P. M., a cold cycle commenced, and continued to February 11th at 9 A. M., making 135 hours, or three-eighths of a circle of 360 hours. On triangulating the records of my observations of this cycle with those of North Salem, Granville and Franconia, the accuracy of my observation was verified.

On the 12th of February, at about 2 A. M., a cold cycle commenced, and continued till the 23d at 9 A. M., a term of 270 hours, or six-eighths of a circle of 360 hours. I watched the termination of this cycle, as I did that of the 315 hours, with intense interest, and felt almost overpowered by the emotions produced in witnessing this wonderful developement of the laws of nature in the harmonies which belong to the atmosphere that surround our beautiful earth.

Thus far in the winter of 1849-50, two cold cycles have existed, the first commenced January 13, between 3 and 4 P. M., and ended on the 15th, between 12 M. and 1 P. M.; filling an exact term of 45 hours, or one-eighth of a circle of 360 hours. On comparing this record with hourly records of temperature kept by Thomas Scott, Esq., at Cobourg, Canada, on the northern shores of Lake Ontario, I find that at that place the cold cycle commenced on the 12th, be-

tween 3 and 4 P. M., and continued to the hour of 11 A. M., of the 16th, a term of 90 hours, or two-eighths of the circle of 360 hours ; the same term existed at Somerville, St. Lawrence county, N. Y., as appears by the record kept by Dr. Hough at that place ; both of these places are near four degrees of latitude north of my place of observation.

A comparison of the records of these three places of observation together, afford a beautiful illustration of the harmony of the laws which govern the changes of atmospheric temperature.

On the third of February, between the hours of 6 and 7 P. M., a cold cycle commenced, and continued until between the hours of 12 M., and 1 P. M., of February 7, a term of 90 hours, or two-eighths of a circle of 360 hours.

When this cycle commenced I was at Saratoga ; the temperature of that place at 6 P. M., was 13° , and at 7 P. M., 10° above zero ; while at Long Island at 6 P. M., it was 33° , and at 7 P. M., 29° . The next morning at 7 and 8 o'clock the temperature at Saratoga was 5° below zero ; at Somerville, 23° below, and on Long Island 16° above zero. At 1 A. M. of the 3d, a rain-storm was in force at Saratoga for one hour ; the morning previous I examined the temperature on the banks of Lake Champlain, at sunrise, and it was 17° above zero. At noon of that day, (the 2d,) I was at West Granville, and examined the temperature indicated by a thermometer kept by Mr. Mack in the shade, on the north side of the house ; it was 32° , while my thermometer hung on the east side of the same house, indicated 26° . This great difference of 6° in temperature in 50 feet, induced me to remove my thermometer to the same position as that occupied by Mr. Mack's, and on doing so it rose to 33° ; but on returning it to its former position, the mercury fell to 26° . This great difference in the two sides of the house, both shaded from the sun, evidenced a great change approaching, which the rain at 2 o'clock next morning confirmed, and further confirmation was made by the frost the succeeding morning. It was during this state of atmosphere that that great calamity in Hague-street, New-York, happened, by which near a hundred persons lost their lives. When the explosion of the steam

boiler took place, the temperature at New-York was 16° above zero; at Saratoga 5° below, and at Somerville 23° below. At 9 o'clock that morning the iron rails of the Saratoga railroad were 2° warmer than the atmospheric air three feet above the ground.

I have thus briefly stated some few facts in reference to a very important discovery in the meteorological field of my research. My observations on temperature are made hourly on four sets of instruments, from 4 A. M., to 10 P. M., and during extraordinary states of the atmosphere, throughout the entire 24 hours. These observations are more extensive and more minute than are shown by any records of the kind heretofore made, and they have been extended to distant and different points, and made simultaneously at each. The cycles are computed from the hour at which the temperature falls to the freezing point of Fahrenheit, to the hour on which it rises above that point.

Equilibrations are computed on the hour records during the period in which the temperature of the air remains unchanged for several consecutive hours. This system of keeping meteorological records shows when changes take place in temperature, and the extent of the change.

I have in this system of observation connected my records with accounts of the phenomena of nature, as developed in the occurrence of earthquakes, lightning, thunder, hail, snow, rain and wind, showers of meteors, and Aurora Borealis, and in these investigations I have become convinced that the sudden changes of temperature of our atmosphere are produced by the earth, and that it regulates its own atmosphere.

I had hoped to have made this communication more full, but the opportunity of leisure does not now serve me in this, and I am of necessity compelled to close without completing it.

Yours very respectfully,

EBEN MERIAM.

Brooklyn Heights, Feb. 15, 1850.



ADDRESS

Delivered at the Opening of the Twenty-second Annual Fair.

By Hon. HENRY MEIGS.

One year ago, ladies and gentlemen, from this place, our amiable and talented brother, the Rev. M. CHOULES, opened the Twenty-first Annual Fair. He complimented our good city for its "*goodly houses*," but added "that the country's good demands an edifice in New-York adapted to the American Institute; it ought to arise promptly, proudly in our city." Within a few months afterwards the good man's wish was accomplished. The American Institute has become owner of No. 351 Broadway, with rooms eighty-five feet long by twenty-five wide, the lower floor let for \$3,000 per annum for five years. The Institute paid in cash sixty thousand of your quarter-dollars and has a few years to pay the balance, at six per cent interest; the whole purchase money being forty-five thousand dollars. So that you now have a noble building free to all men, with its library and reading-room and repository, free of expense. If the Institute should be dissolved, which is about as near as the end of the Republic, each member will find his share of property about double the amount of all his payments to it. These rooms are conveniently situated as to all our people and to all strangers, and we can proudly call it the House of all.

No patronage but yours has effected this. When the State of New-York gave a charter to the Institute, that it should encourage Agriculture, Commerce, Manufactures, and the Arts, the first steps were those of a child; but by the volunteer labor and talents of a few hundred citizens, it has attained manhood in the same time that it is reached by a young man. At twenty-one years of age it became

a man. It has done all this by your good will and good sense, and it will labor as it has done, to repay by solid benefits all that has been given to it.

There will always be found American citizens of patriotic and intelligent souls, to sustain and increase its power to do good.

It is no place for idle and ignorant men to be in. It is a hive admitting no drones. It realizes, in a pleasant sense, the old Roman sayings, "*Sic vos non vobis mellificatis apes.*" "*Sic vos non vobis vellera fertis oves.*" Like the bees, it makes honey not for itself. Like the flock of sheep, it bears fleeces not for its own use..

What man blessed by the Almighty with his full equal share in the Independence declared in '76—in the management of a mighty power of more than twenty millions of the most energetic race ever living on the globe, having one foot on the Atlantic and the other on the Pacific ocean, with the Orangeries on the South and the frozen lands on the North—what member of such a state as this, but feels just pride in his position?

We may truly begin to enumerate the steps which have led us to this point of our national progress.

The Pilgrims landed at Plymouth rock, without the slightest stain of wrong intent—with no longing for wealth—with prayer and with pure love for liberty and equal rights. The gallant Smith went to Virginia with no expectation of finding mines of gold. He and his descendants were always for liberty and pure morals. Disease, fierce savages, and often neglect at home did not stop the growth of that section. Smith was a hero in battle, but that was the least of his claims to fame. This country has been founded by men who placed none but the rational value upon riches. What has followed in the order of time. A Washington who, in ancient Rome would long since have been called by the Senate, Divus, a God! A Ben Franklin, a mechanic, a printer; the first man of our race (which had seen the lightning flash for almost 6000 years,) who proved that it was identical with the petty sparks from a cat's back or a silk stocking,

and put up an iron rod to conduct it to the earth in safety, as a spout leads off water from the roof. Champion of true rational liberty, he distinguished himself in her cause. No man but him ever lived to deserve the latin lines awarded to Franklin—"Eripuit Coelo fulmen Sceptrumque Tyrannis." *He tore the thunder from the heavens and the sceptre from the tyrant.*

Cotton had been picked by weary hands, little by little from its seed, for nearly *six thousand years*; so great was the labor, that cotton cloth was almost as dear as silk. An American, Whitney, invented a machine which picked more cotton off the seeds in one day than a human being could do in many weeks. See the wonderful result. You have already made here in America cotton cloth enough in one year to give a garment to nearly all the human race, and at a price so low that no beggar need be without clothing. The world for the same six thousand years had seen steam hissing from every kettle, but to apply it to great practical uses. An American following other Americans, Fitch, &c., *Fulton first took the wind out of the sails of the ships of mankind*, and made them go against wind and tide, leaving the sail vessels as if they were at anchor, or beating their toilsome way up the long rivers, or against the head winds of the oceans. Next, an American, Morse, following in the wake of Ben Franklin with kite string to lead lightning from cloud to earth, invents a plan to lead intelligence, *literally from post to post* over the world, and tell you what the weather is a thousand miles off in less time than you could walk from my ninth ward to this castle! Your ship waits to hear how the southern gale is moving, and sails when the whirling storm has gone by. For six thousand years before this time, the unconscious seaman in a lovely afternoon left his harbor and next morning found himself in the furious tornado which has foundered hundreds of ships. I claim here for another American, Junius Smith, that when the project of Ocean Steamers was first broached, when *almost all*, perhaps *every seaman*, declared the utter impossibility of driving a ship against ocean's stormy waves—(when distinguished men of learning doubted)—asserted publicly and boldly the certainty of success. That same Junius is now actually employed, without any government patronage in making the teas of China grow in this

country, and he has laid the foundation so well that I believe America will ere long raise more tea than she can drink.

All these efforts tend to one grand conclusion! National Independence—what ought we to say of the Briareus of mechanism, of our mechanics of every branch? Did any human being ever behold such efforts to make all the works of skill so perfect? We have an omnibus to ride in for sixpence which Cleopatra would have given a Province to possess. Carts and wagons for the most common purposes, that were never equalled by the triumphal cars of any of the Roman Emperors, for beauty of work and *strength and utility*.

We wished that we could have used our own exhaustless ores of iron and our coal beds to make our own railroads; as it is, we had not long ago as many thousand miles of railroad as all the world besides. Now, stimulated by our example they are copying fast and well: The Russian Emperor *has employed an American* to make one of the most magnificent roads in the world, that from St. Petersburg to Moscow.

We have, however, a lesson to learn now, and that is the way to fortify our independence and liberty. We are recently admonished that our *free system* sets a bad example to the old world. *That all republics but this one alone are laid low!* That perhaps a struggle for our *free system* is approaching! Let us prepare by *having nothing under heaven to borrow from other nations, but every thing to lend!* Let us keep the Washington, Franklin, and all those western stars like a constellation before our eyes. Work out all our own vast resources like Beavers. Avoid all idleness, and in the life of a large portion of those who hear me, future Washingtons and Franklins will tell a hostile world in the old Scotch motto—*Nemo me impune lacessit*—and at the same time advise them to do as we do

The American Institute recognizes no party politics; it labors for the good of this nation, because it loves it—because it glories in all those delights and utilities of the highest civilization that can be enjoyed by a people which will cover this continent from sea to sea.

We often use the term American System, and we have a right to do so. Since the world began, men never before felt what it was by millions in number, to be all free. *And we love law and order.* Our citizens whether here or in California, under all circumstances and conditions with one astonishing concord, grant almost without a murmur, the just right of a majority. You behold ever since 1776, minorities, composed of men as bold and fiery in temper as ever lived, submitting to the will of the majority with such absolute quietness as would dignify the most rational philosophers of the world. For the first time since the deluge, vast masses of men are here seen, all desirous of power, yet all substituting from a proud principle of Republicanism—reason for force—*the ballot box for the bullet!* Our ancestors of England had much of this spirit among them. They never would have a Salic Law like France, excluding ladies from the throne; on the contrary, they never seemed better pleased than when they had a fair one hold the sceptre whose white hand they could kiss without an alarm to personal haughtiness. They are somewhat noted as *king killers*, but they never beheaded their Antoinettes. We, like them in this, are by no means likely to kiss the hands of kings, but in the course of time, we may perhaps have a lovely lady presiding, to whom we may pleased bow and *baise mains!* That, however, is postponed until the severe labor of building this great western temple of liberty shall be finished. In the interim, we are of that sect in human philosophy, in private as well as in public life—*who place the highest hopes of human perfection, of felicity, upon the exaltation of the fair sex!* And permit me to remind you of a very remarkable fact every where witnessed in our country to its remotest borders. A respectable female travels throughout the land whether guarded by her friends or alone, *not only without insult or injury, but with the certainty of most respectful treatment on all occasions from every American!* This is a national characteristic, of which I am rather more proud than I am of *his* unsurpassed daring in battle.

The Roman Satirist Juvenal speaks of the early, best days of that Republic—saying, *then all her ladies were honorable and all her men were brave!*

My duty calls me but to open the gates of this Castle. You come and salute its giant—Young Grizly, unconquerable ; but not like Hurllothumbo, or Jack the Giant Killers' giants—carnivorous, fierce and bloody, but the Giant of American Industry, whose glory it is to feast your eyes and gratify your tastes, and aid you in all your wants, by his countless works. See for yourselves, examine carefully, or perhaps you will overlook some work of genius—of an apprentice—of a keen mechanic—of a philosophical machinist. Let your senses be fully awakened by the wonderful art of thousands of Americans, who have volunteered them to this exhibition.

I would most gladly enter on a detail of the precious things here spread before you. But you yourselves need no urging from me. The farm and the garden are here represented in noble style. Those who belong to the delicious Kingdom of Pomona are here with their Cornucopias, precious vegetable gems are in them ; then the farm presents its samples—the farm ! *whose annual product* in this Republic is worth in gold more money than can be expected from all the placers of California in a hundred years ! Why let me remind you that the little island of Great Britian, on its farms, in 1844, by report of Parliament, raised in one year three thousand millions of dollars of which almost one half was in the turnips and their uses. You are aware that our grass is worth over one hundred millions of dollars a year. You see that cheese which several men are required to lift. Our cheeses have now acquired a fine quality which recommends them to all the world, and for quantity, no man counts it.

Washington ! our great farmer Washington, Pater Patriæ, foresaw and worked and continually talked to this end. Let me read an extract from a letter of Tobias Lear, dated Mount Vernon, March 30, 1787:

“ One cannot in my situation here, avoid acquiring some considerable knowledge of a farmer's life, even if averse to it. General Washington is one of the greatest farmers in America, and I don't think I should be much out, if I was to say, in the world. He possesses in one body nearly *ten thousand acres* of land—employs upon it constantly two hundred and fifty hands. He raises none of that *pernicious weed, tobacco* ! He directs every thing that is carried

“on. He continually makes extensive experiments to improve the science of agriculture. He is stimulated only by the desire to benefit mankind. He keeps twenty-four ploughs going at all times of the year when it is possible for a plough to stir. *He has sowed this spring six hundred bushels of oats.* He has seven hundred acres in wheat, and as much more for corn, barley, potatoes, peas, beans, &c. He has five hundred acres of land down in grass. He will sow this summer one hundred and fifty acres of turnips. He has one hundred and forty horses, one hundred and twelve cows, two hundred and thirty-five working oxen, steers and heifers. He has five hundred sheep. He entertains much company. Last fall he killed one hundred and fifty hogs which weighed 18,560 pounds, all which was *for house use, exclusive of the provisions for the negroes.*”

Ladies and Gentlemen ! The American Institute salutes you with the most cordial feelings. May all blessings wait upon our people whose arms are wielded for the victories of Agriculture, Commerce, Manufactures, and the Arts. May our sieges of Castles be for many generations like that of to-night, the smiling army of ladies and gentlemen pressing to its arena, which once grimly frowned with the heavy cannon on our beautiful bay. I have seen furnaces prepared to heat cannon balls red hot, in the places where those rich works of peace now stand.

Permit me to close with an invitation to you to stretch your vision a few years to come, and behold the railroads from here to California, making the journey there in one week and back in another. Our telegraph saying on the 3d Oct. 1869—the Steamer China has just arrived from Canton in fifteen days, with a cargo of half a million of dollars. The passengers will take the cars this evening, and be with you in New-York, on the 10th or 11th inst. at furthest. See then a thousand large steamers whose pipe smoke may be seen by day, and their lantern lights by night, all over the mighty Pacific Ocean. See the Island of Robinson Crusoe. See the Pelew Islands, peopled with happy races of the highest civilization. See parties bound on a fishing excursion *from New-York to Tinian.*

“Of Ternate and Tidore, whence merchants bring
“Their spicy drugs; they on the trading flood
“Through the wide Ethiopian to the Cape
“*Ply stemmingly ! nightly tow’rd the pole.*”•

Milton’s stemmingly sounds like our steamers’ motion—stemmingly,
indeed ! cutting the wave and the tempest *in two !*

ANNIVERSARY ADDRESS

Before the American Institute, at the Tabernacle, on the 11th of October,
1849.

By the Hon. LEVI WOODBURY.

GENTLEMEN OF THE AMERICAN INSTITUTE:

Meeting, as you do, for the promotion of agriculture, manufactures and commerce, it may be useful to make their encouragement the theme of my discourse. Such encouragement is a noble employment—a noble topic.

These great interests lie at the foundation of all that can peacefully build up states and empires. And amidst the various views connected with so fruitful a subject as their encouragement, perhaps none can be made more useful than to examine by what causes, and in what particulars, these interests have, in modern times, been most advanced, and in this way, help to discover what are likely to be some of the most efficient means to produce further improvements in them hereafter.

One of the successful courses to promote the prosperity of all of them, has been to cultivate their harmony and co-operation. When these have been cordial in any community, they all triumph—all being thus made tributary to all—useful to all, and swelling the power and progress of all. Indeed, they are three sister handmaids, and, when friendly, exert united vigor, rather than, being hostile and sinking, under jealousies and fatal divisions. They should interlock arms like the graces.

Among the earliest voyages, was that of commerce for the golden fleece, which usually is raised by agriculture, and was to be made into clothing by manufactures. They had their birth nearly together,

agriculture having commenced with the want of food, manufactures with the want of clothing, and commerce with the necessity of each, to exchange surplus means to procure the other.

As a further illustration how all these interests are interwoven, and should be equally encouraged, each is almost entirely dependent on the other for existence, no less than prosperity ; because agriculture without manufactures, is destitute of tools for labour ; and, without manufactures and commerce, it must abandon its surplus productions, to perish unused ; while manufactures without agriculture, are without food and most of the materials to work upon ; and without commerce, cannot obtain them in exchange for supernumerary fabrics, which they, themselves, can neither eat nor wear. And commerce, the chief medium for diffusing knowledge and the arts—the great civilizer of the human race—would be without employment, and powerless, if agriculture and manufactures did not furnish surplus to be sold, and thus beget intercourse and mutual benefits between different places and persons, and, indeed, bind together in interests, not only one people, but nations on opposite sides of the globe.

Hence the encouragement, and the consequent success, of all these pursuits, if made one common interest, a united object and aim, in every community, they will then, instead of being enfeebled by partial and opposing measures, and a happy family divided, and every bright hope of all extinguished, they will then move onward, with a force as resistless and sure as that of the great laws of nature around us.

Other separate means to advance further each of these important interests, can be developed best by adverting, separately, to some thing the most striking in the progress of each, during the last century or two.

First, as to agriculture. In the long lapse of time since the cradle of the human race was rocked, in Asia, in a garden, agriculture would much, before the last one or two hundred years, appear able to have attained the highest degree of perfection, by means of different soils, from rich vallies to the most barren mountains—tested by every va-

riety of seed and plant—sought out in every climate, hot or cold, moist or dry, on island or continent, as they rest upon primitive rock or alluvial deposits, or volcanic lava, or the labors and tombs of the coral insect, like some of the fertile isles of the Pacific—long ere this we might, at the first blush, suppose that every improvement had been exhausted. But it is to be remembered, that the whole life of all nations has not been devoted to agriculture. In some, the hunter state appears to have preceded that of the shepherd, and the shepherd that of the husbandman, with as much regularity as the oak, on some soils, precedes the birch or the pine. While in others, if placed like our first parents in Paradise, “to dress and to keep it,” and, when driven forth, ordered to “till the ground” from whence man was taken, was the great employment designed by Providence for the human race, they have still been interrupted in its pursuit, as a continued avocation, by superior attractions in manufactures or commerce, by war or pestilence—by inundations, or hurricanes or earthquakes, or the still greater curse of despotism or anarchy, till every useful instrument has been pillaged, and prolific fields converted into sand-heaps or morasses, or, as now in Saint Domingo, where whole plantations of sugar and coffee are overgrown with forests. The mind of the tiller of the soil, in many regions and ages, has also been allowed to remain as barren as his rocks, and like his neglected fields, to run waste, with thorns and thistles.

Amidst the fluctuation incident to such circumstances, it is therefore not surprising to find, that the culture of the earth has been in some countries stationary, or even retrograde, while there has been in others a striking change for the better, and especially within the last two centuries. In illustration of some of its improvements, without going behind that period, the plough may well be particularized. From something little better than a stake, it has in some regions become a machine, possessed of iron strength to contend with roots, rocks and a stubborn soil, and which abridges greatly the labors of man, and, by a union of science with skill, is made the most successful pioneer of fertility and wealth. The stone axe and hide chain of the Indian and semi-barbarian, have likewise changed into iron or steel, possessing so much superior durability as well as efficiency. The threshing machine has generally, with tenfold power, superseded

the flail, or the foot of the muzzled ox and horse to tread out grain ; and this, or a separate fanning mill, now cleans it at less expense, and at all times, with artificial wind, though in the stillest calms of nature. The invention of the horse rake has, probably, saved millions. Water comes in hydrants for our cattle no less than families, rather than being laboriously visited or brought by hand from remote springs. Thus, and by drawing it from the well by better machinery, the science of hydraulics has done much to improve husbandry and promote health, as well as household conveniences ; and, in several of our large cities, as is witnessed near us in the Croton nectar, has showered its blessings on all classes with a profusion, and on a scale of grandeur hardly exceeded by the giant aqueducts of antiquity.

Chemistry, too, has analyzed the air, the ocean and the earth, and poured forth all her skill to aid mankind in growing materials for food and clothing, and to supply not only the necessities of life, but its comforts and luxuries. New manures, in gypsum and salt, and new soils by the mixture of deficient ingredients, are among its proudest trophies.

Before chemistry itself was improved and applied to test the true ingredients of soils, the discrimination between them was well known to be useful, but could be taught, as two thousand years ago, only by distinctions so general and unsatisfactory, as heavy or light, black or red, and wet or dry.

The suitability of particular crops to particular soils has also received some of the attention it so richly deserves, as has that rotation of crops, which will not feed only on one earth, one alkali or acid ; but some of them thrive on what is left by others, and what is supplied by the bountiful and renovating dressings, which science as well as experience direct. The habits and the physiology of plants has become much better known by the fascinating study of botany, so as to assist not only in their culture, but in the useful application of them for food, both to man and domestic animals. Better seeds, likewise, are thus able to be selected for planting as well as food. Besides this, natural history has contributed liberally to enlarge the knowledge of fattening animals, of the proper nutrition and treatment to increase the power

of labour, and of the crossing and improvement of breeds, whether for labour, weight and food, or beauty ; and whether the pampered swine, the useful ox and cow, the invaluable sheep, or the sagacious horse.

Nowhere has one cause of a larger supply of milk and a richer dairy been more significantly pointed out, than by the Scotch farmer, who, according to Coleman, sold his thifty cows to an Englishman, that returned ere long with complaints of their great falling off in milk. "Remember," said the Scotchman, "I did not sell you my pasture, but only my cows." In nothing, however, is the advance in agriculture among us more conspicuous, than in the new and useful articles on which it has, within this recent period, bestowed a portion of its energies. It has added the tomato and rhubarb plant to give health to our tables, the sweet and the Irish potato to feed millions, and the latter, with the turkey, to immortalize the discovery of America even more than its magnificent rivers and mountains. Our increase has been so rapid, also, in rearing former articles, partly by means of more prolific soils, but much by improved methods and skill, as to supply pork, for instance, to portions of another continent, and lard to half the world, if needed ; and even oil, till the hog is painted in the west as swallowing the whale. The growth of hemp, also, has there been greatly extended for duck and cordage ; and the cane in the southwest, for sugar ; and the wheat crop of the whole country augmented till it has reached 112,000,000 of bushels, becoming as much as that of all England and Wales, besides our vastly augmented products of potatoes, hay, rye and oats, and 540,000,000 of bushels of inestimable Indian corn. In short, we seem to have become to Europe, if not the world, what northern Africa once was to Palestine, in the days of Joseph, or the Pharaohs, and afterwards to all Italy, the great granary, and the chief safeguard against famine.

Within little more than a half century, agriculture has likewise introduced here, and, by aid of the cotton gin, supplied, probably, three fourths of the raw material which clothes a large portion of the habitable globe. Within that brief space, it has swollen the production of cotton, from a few bags, to more than a thousand million pounds, and to the value of sixty or seventy millions. It has thus not only yielded the agricultural wealth which enriches states, but provided employment

for the spindles and looms of both Europe and America, and loaded the vessels of commerce with a richer freight than the golden fleece of Jason, or the abundant mines of California.

A similar career of improvement has in some places attended on manufactures. I have treated them, and shall continue to, as embracing all the mechanic arts. A co-labourer, thus, with agriculture, and necessary to give to it implements to work with, and indispensable to furnish all the labour-saving machinery which from time to time so increases the power of man over rude nature, manufactures, in late years, have made still more rapid progress than agriculture, by the greater application to them of the new, as well as miraculous discoveries in science, and by the awakened ingenuity of inventive genius, the world over. Their fruits have almost revolutionized some portions of the globe within two centuries. To be sure, the mariner's needle, gunpowder and printing preceded this era ; but what have we seen since, in the spinning-jenny and power-loom—in stamping calicoes by rollers—in stereotype-plates and power-presses—in the manufacture of iron, no less than in its products of nails and screws, costing less now, by machinery, than did once the raw material—in the working on wood, from the planing machine of Woodworth, to the almost intellectual turning lathe of Blanchard—in the use of gangs of saws, the circular saw and improved water-wheels, and devices for elevating and drying grain, when ground, no less than the remarkable uses of all the novel agencies of steam, electricity and magnetism ! These last were as unknown before, for such practical purposes, as the last planet discovered by Herschel or Mitchel, in the most distant regions of space. Manufactures have thus not only aided agriculture, in the cheaper production of food and means for clothing, beyond the naked fig-leaf, or furred skin, but assisted commerce to transport them by the railroad and steamboat, so as to accomplish, at a far lower rate, an interchange among every quarter of the globe, of all the surplus labours of man. Another great gain by this, as well as many other improvements in manufactures, is the increased rapidity of its operations. It has made locomotives, that cross states while the wagon formerly was loading. It can make paper while, in days gone by, it was washing the rags. It can print books, while once it was setting the types. It can clothe armies in cottons, during the time it was once engaged in

cleaning the raw material of its seeds. It can spin a thread to go round the globe, while the stock for it, in the ancient mode, was only carding by hand.

Cloth can be bleached now in the time formerly taken to spread it out. All the metals as seen to-day in your splendid Fair can be cut out and bored, rolled and planed, with nearly as much ease and speed as wood. And leather can be made in a day, if need be, which once required months. The inventions for weaving carpets, for sizing, folding and carding, and even for knitting and sowing, by machinery, are all advances, which, though sometimes small, separately, contribute much, as a whole, to swell the improvements of the age.

Manufacturing, too, is a powerful peace-maker. It has improved fire-arms and cannon, both easier to make and "keep the peace." It has added new and more powerful kinds of gunpowder; new shells and combustibles; new modes of crossing streams; new means of preserving provisions, and new inventions to sustain the broken limb and move about the wounded body. It has thus mitigated some of the horrors of war, as well as multiplied the blessings of peace. Beside this, some new articles, or new uses of them, like India rubber and gutta percha, have, by mechanical ingenuity, been applied, so as to extend much the comforts and health of society at large; and whole nations have so felt the renovating power of some modern improvements in manufactures as to bear burthens, and spare surplus hands for the victories of peace as well as war, which, but for Arkwright, for Watts, for Nielson and Fulton, might have been as impracticable as some of the achievements in the tales of the Arabian Nights.

Finally, commerce has crowned the whole by her rapid advances. In some quarters of the globe she has almost distanced agriculture and manufactures in their triumphal progress. The form of the vessel has been varied, and fitted better for its intended burthen; the water casks and tanks made and stowed more usefully; the iron chain substituted for the feeble vegetable cable; the pumps made more efficient, and the means of navigation, by superior quadrants and nautical almanacs, become more accurate and safe to cargo and life. Thus

supplied and guarded, commerce has dared to plunge into new seas, and visit oftener new races.

Commercial treaties are extended to all sides of the earth ; and foreigners every where are less regarded either as barbarians or enemies. Commerce, in seeking new markets, has broken through even the gigantic wall of Chinese monopoly that had withstood the assault of a thousand years, and has thus established and increased intercourse with 400,000,000 of the human family. She has, in this way, discovered not only new markets and new articles of trade, but new fishing grounds, and drawn richer harvests from the depths of the ocean ; and though commencing here, the whale fishery, early as the 17th century, and by courage and enterprise in it, long ago deserving the eloquent eulogies of Burke, yet she has pushed it since, with a daring and success, eclipsing all other nations ; and not only ventured to chase both the seal and the whale among the icebergs of the Antarctic circle, but cross the Equator twice, and harpoon the leviathan of the seas, in sight of China, whose boasted " celestial" population, with five thousand years of traditional experience, have never yet dared to attempt this, even on their own shores.

Strangers, in travelling through the southern portions of New-England and New-York, often wonder how its dense population can subsist, and apparently become thrifty. But they forget, that beside the little obtained from their sterile soil, the females earn much in manufactories, and the sons and the fathers cultivate the wide fields of every ocean, circumnavigate the globe, and plough for wealth among the shoals of mackerel and cod, herds of whale, and rookeries of seal and sea elephant, to the utmost range of earthly existence. From four to five millions of dollars are in this way drawn yearly from the sea by that enterprising race, almost amphibious, and I may say half web-footed.

Other portions of New-England, more northeast, and almost as sterile, flourish in some degree from a similar kind of commerce connected with these fisheries, and of late years have added rich exports, even from what otherwise most people would regard as curses—their rocks and their ice ; these, by the talismanic wand of commerce, be-

ing converted largely into coined gold, and operating as kind blessings, both to the sellers and purchasers.

But the proudest triumph of commerce in modern times has been the employment of steam and the electric telegraph, one moving the heaviest burdens, in transporting passengers and merchandise, without wind or tide, or the ox, the horse or the camel ; and the other, communicating the results with lightning speed : one bringing all nations closer together, for an interchange of improvements in ever thing, like the great book fair of Leipsic for food to the German mind ; and the other outstripping the wind in despatching the news of all, and the wants of all, to every mart, however difficult or distant. In the cheapness of carrying letters, also, almost as remarkable a discovery has been made by lower postage as by the electric telegraph.

But enough of this hasty sketch of some of the modern improvements, already made in agriculture, manufactures and commerce. They are guide-posts to the mind, for making still further advances. This review has been but opening a door to see and examine some of the lessons thus taught to increase our future progress in these great sources of national wealth and human happiness. When any of us do not hold the plough, or throw the shuttle, or hammer the anvil, or reef the sail, we still regard those who do as sheet-anchors of the Republic, and would fain glean something, for the benefit of each, from the sybil-leaves of experience scattered over the past. But more especially would we do this, first and foremost, for agriculture ; because that is, confessedly, the noblest pursuit of mankind—the one whose disciples keep up the most constant and purifying intercourse with God and nature—who constitute, so generally, the great conservative power in all governments—standing by law, order and established institutions, till the latter cease to produce the chief ends of good government, and whose labours make them the saviours of famished nations, and the foundation hope for the continuance and multiplication of human life, in every civilized portion of the globe. If asked by what special means agriculture seems likely, from her progress heretofore, to be improved most hereafter, I would say, by pushing further all which appears heretofore to have improved her most. It is, in brief, by using more and more, labour-saving machinery—by using more and more,

the most appropriate mixtures and dressings for particular soils and crops and by understanding better the habits of different plants, and the qualities of different animals, which are capable of being improved, with the best modes effecting a salutary change in them.

Thus, for instance, in this age of light, and in a new country, can any one be unable to see the advantages of obtaining an implement in husbandry, by which one man can perform, in a day, double what he could before ? or which will cost but half the price of a former one ? or which, at the same expense, will last twice as long ? By thus cheapening production, all live at less expense, as all are consumers of food and clothing ; and though some may be obliged, at first, to quit their old mode of employment, especially when new machines for manufacturing are invented, yet the use of such improvements increases so rapidly, that more persons, ere long, are employed in the same business, and often at higher wages, as has been most emphatically shown by the invention of the art of printing, to multiply copies, and of modern machinery, to spin and weave cotton. Your President has happily enlarged on this, a few minutes ago. It is hoped, therefore, that, at least in this country and age, we have but few Norwich rioters, so ignorant as to be willing to destroy stocking-frames, because they save labour, and fewer Lord Byrons, so little versed in political economy, as to advocate their cause in an assembled parliament.

Nearly a century ago, a Scotch mother, according to Sir Walter Scott, objected to her son's using, what she called, a "new-fangled machine for dighting the corn from the chaff ; thus impiously thwarting the will of Divine Providence, by raising wind for her ladyship's own particular use, by human art, instead of soliciting it by prayer," &c. But now there is no American, it is believed, and, peradventure, no Scotchman, so far behind the present exciting and well informed age, as to raise a hue and cry against any new labour-saving machinery. One obstacle to its rapid increase in agriculture will be thus more fully removed, and neither winnowing nor threshing machines, nor others of like value, be opposed, on the ground that they are irreligious, or because they save so much manual labour. Instead of that, by the increase of intelligence, all labour-saving machinery in farming bids fair to become more widely introduced

every year. It can also be improved in form. The threshing-machine, for instance, can be made to triumph still more than it has already, by separating one or two hundred bushels of wheat, per day, from the straw. And the horse-rake is growing, and can continue, by care, science and experience, to grow still better in shape and material, and is one of the modern inventions, destined, probably, as more used, to be among the very greatest in profit; because it is beneficially employed in harvesting an article, which, humble as hay may be in the estimation of many, is yet the most valuable in New-England husbandry, and, next to wheat and Indian corn, the most valuable in the Union, outstripping, by one third, even the mammoth product of cotton.

Reaping by machinery and horse-power, is likewise making rapid progress; and by care to have the profits of it known more widely, bread, the great staff of life, will yearly be made to cost less to all, and especially to the toiling millions. Approximating more such beneficial results, by other machines, when not done already, will, ere long, be accomplished by the farmer, as their utility is demonstrated, and this, however slow, he is generally to change. Let it be remembered, too, that in agricultural improvements, and the greater use of iron, that most faithful servant of man, and the best witness, by its abundant employment, of a high civilization, must be one chief agent, entering more and more into tools and implements, on account of its increasing cheapness, no less than its superiority in durability and strength. Let it be remembered, that coal is to be another more used and improving agent, not only for warmth and cookery, but to feed the all-devouring appetite for fuel of the steam-engine, and for gas, more and more to light our cities; and salt, another, not only for a condiment to man and stock, and the preservation of meats, but for manure on many soils and for many plants. What more may be done, likewise, by electricity, as an instrument or manure in advancing vegetation, is likely to become one of the most useful inquiries connected with that remarkable agent. Let it be remembered, too, that all the powers of chemistry should be more invoked to aid in the discoveries of new manures, as she has lately in bones, turning them up, for instance, on the field of Waterloo, for agricultural use, rather than only, as in the anticipation of Virgil, on the field of Phillippi—

“The farmer, laboring with his crooked plough,
The rust-corroded javelin shall find,
————— And, with wonder, view
The giant remnants of the broken grave.”

She can also aid still more in ascertaining the most useful ingredients in all manures, and in preserving and applying them in the best manner. It will surely be much better to have them enrich the field which is to grow crops, than float off to the ocean in water, or be wasted by evaporation in the air.

The valuable assistance of chemistry is also needed more for the discrimination between the different manures, suited to different crops, which is so indispensable to much success, no one dressing or mixture of soils being a triumphant panacea in all cases, any more than was Dr. Sangrado's bleeding and hot water in all diseases. The sandy plain, for example, does not demand more sand, but clay; and of course the clayey surface does not need more clay, but sand. To any field, much exhausted of its silex, in forming the hard stalk of wheat, rye, barley, oats, or some of the grasses, requires more silex; and for the pea or bean, more potash must be added to the soil, where that ingredient has been used up. It is well known that some plants, like the rattan and cane, absorb so much sand, that fire can sometimes be struck from them, as from a flint, and that the whole color and beauty of the rose comes from its iron. It is this striking feature in nature, supplying different food to different plants, as to different animals, which, without cultivation, causes a succession of different trees on the same soil, as the pine and birch, after the oak; because the earthly particles, suited to support the latter, have been absorbed and exhausted, while those to nourish the former still remain. This furnishes in part, also, the true philosophy and guide to enable the farmer, by more careful discrimination, to produce a better rotation of different crops from the same field, a practice known to some, long ago, as the age of the Roman Georgics—but imperfect then, as it often is now, from ignorance of the true reasons for it. All farmers are likewise admonished, at times, that too much manure is used for some crops, though the most common error is the other way, in applying too little. Since the employment of the more concentrated manures, like poudrette and guano, their easy and lavish use often makes

plants grow too rapid, and too high for their strength, and thus, like some mushroom politicians, they are apt prematurely to break down.

Next in importance, for its influence on crops, and deserving still more attention than heretofore, is a proper degree of moisture. Water being the medium for supplying much other matter to vegetation, and itself constituting a large portion of the weight of most plants and fruits, amounting from ten to fifteen per cent, even in the dryest and hardest wheat, it should be more and more an object to regulate moisture well. One of the secrets of nature, in often producing much on a soil with a sprinkling of small stones—one of her beautiful compensations for an apparent evil, is the greater moisture retained by means of them—most of our best natural soils, when analyzed, being found to contain from seventy to ninety parts out of a hundred, of siliceous matter. Granite scales or debris, scattered sparsely over some fields, will increase moisture, by preventing evaporation, and will enrich them like a fertilizing manure; and some other rocks, like gypsum and lime, independent of their peculiar virtues, operate in a like manner, rather than, as once said, by a few, of lime, “burn up the land.” If the granite decompose any, it will enrich also, by its potash, so indispensable to the perfection of some plants.

Irrigation is another means to furnish additional moisture, where needed, and though some employed ever since the days of the bard of Mantua on his paternal acres, it might be still more, with much advantage, as might a more free use of straw as a dressing; and as might deeper ploughing, independent of any aid from Professor Espy to create showers artificially. While on the other hand, where greater dryness is desirable, it will be useful hereafter to look more to shallow ploughing, and to practice more the ditching and draining which are so well known to be the great instruments to remove surplus moisture, and thus increase the quality of the crops, warm the soil, and improve the health of all near, instead of leaving them to breathe out a brief and feverish existence amidst deadly miasma or malaria.

Much is yet to be accomplished by closer attention in using the best seeds for planting and for fruit; and the increase of the latter

for food, already great, can be made yearly a greater source of wealth and health, and presents in the apple, so abundant and useful as well as delicious, when carefully grafted, some apology for the original sin of eating it when forbidden fruit.

What a field, too, is now opening in Florida and Texas for the production of some of the rich tropical fruits, so conducive to health, when temperately used, and always so genial to the taste.

But, above all things, in encouragement to agriculture, we must be cautious to make every improvement simple, plain, easily intelligible. Time and money should not be wasted on what is complicated, as such machines are not suited to the taste of farmers, and much less can they be made useful in the hands of unlearned labourers and boys, who attend to most of the arduous duties of agriculture. A farming instrument, which should possess the numerous parts and complexity of Bigelow's invention for weaving carpets, would be generally as useless as the fifth wheel to a coach, and well deserves "the thorns and briars of reproof." Any change, likewise, which is very expensive, cannot much benefit agriculture at large. It may be within reach of the wealthy, a patrician few, who sometimes usefully patronize her labourers, rather than labour themselves; but the masses, who worship daily in her temple, with the skies for their canopy, and the earnings of personal toil for their reward; or those who, though "lords of soil," cultivate with their own hands, like the Roman Cincinnatus, their small freeholds cannot afford large extra expenses or large advances, and look chiefly to yearly returns for yearly outlays.

Farmers on such a moderate scale deserve, also, more encouragement, as more can thus live in independence, as the mind of labour is more exercised and elevated, as it cherishes more self-respect, and as capital and labour are thus more closely united in one common interest, and their efforts are more identical, rather than hostile. Personally grasping all their own concerns, such farmers understand them better, and thus govern them better. And however pleasant it is to behold many broad acres and vast crops, belonging to a single establishment; and however profitable it may be made at times, it will be found wiser for most of our people to cultivate less in quantity,

and better in quality, and thus adopt the advice of the agricultural poet—

“Praise the large farms, but cultivate the small

“*Laudato ingentia rura, exiguum colito.*”

The observant mind is also to be more encouraged. It must be more stimulated to watch changes in temperatures, in winds, in seasons; to journalize important facts and experiments; to improve occasions, and draw useful hints from all sources around it.

The farmer is almost a different being, and especially in this country, from what he was in much of the world two centuries ago. He has long ceased to fear poisoning his ground and crops by manures. He has, and by our systems of free schools, more extended, and, of cheap, printing increased, he will continue to have still more intelligence to improve in every thing. He is not now a mere machine of bone and muscle. He is a ruler, and not merely ruled. Instead of a serf he is a capitalist, a freeholder; and who cannot become one amidst our boundless public domain? He is, in short, a thinking being, a reformer, a man of reading and experiments, not

———“chained to one peculiar spot,
To draw nutrition, propagate and rot.”

Philosophy, even, will aid such a mind the more she herself enlarges her discoveries, and will excite many new reflections, and open a door to many agricultural improvements. Take, for instance, such facts as that recently established in respect to the Gulf Stream, that when flowing near lands it sensibly influences their warmth and moisture. So that from this cause certain grasses and grains will flourish, and others fail, in some places, in some latitudes, which will not happen in other places alike, north or south. As heat, moisture, or prevailing winds differ permanently in the same latitudes, which they often do, from more or less proximity to the ocean, to lakes or to mountains, or from elevation more or less above the ocean—without enumerating still other causes—different crops must be resorted to, and many different rules or laws in rural economy must be relied on, almost as much as in latitudes entirely different. Thus, of China, a writer says, that “terraces of earth are piled upon the sides of its rocky hills, one above another, to the very summit. These are tilled,

and each supports the vegetation of a distinct climate." And as to different latitudes, it has justly been observed, that "the sun does not shine upon two degrees on the surface of this globe the vegetation of which is identical, for every latitude has a Flora of its own.

If a part of this savours of what some decry as "book farming," yet its foundation stones are observation and experience, and while I am willing to concede that books alone cannot make good farmers, and that mistakes are sometimes committed by scientific men in the analysis of soils and plants, which cause much disappointment, yet books frequently aid practice, and suggest improvements the most valuable. Especially is this done by agricultural newspapers, with which our enterprising country more and more abounds, improving, too, in quality, as science is more readily applied to advance the arts. Indeed, the whole press, with all its wide spread influence, is, and can be made still more, a liberal patron to agriculture, no less than manufactures and commerce, by spreading to all points of the compass, the news of every remarkable product, every useful invention, every rare voyage ; and many a heart can be thus stimulated to further and successful exertion in these great pursuits.

Agricultural schools, connected with model farms, possess, likewise, one advantage over all other teaching, to the few able to attend them. They unite experiment with theory ; and each is thus enabled at once to reciprocate benefits, and pour floods of light over the other, in developing the mysteries of nature. May, therefore, the great and unflagging interest, which has been exhibited by this Institute in behalf of such a school, associated with such a farm, be crowned with the success it so richly deserves. The general government, too, having at last organized a Home or Interior Department, will not be just to the expectations long entertained by the public, unless the promotion of agriculture should be made one of its chief objects, and the patent office relieved from one of its recent and well performed, but anomalous labours.

Passing from the means of further progress in agriculture to those in manufactures, it is manifest that greater prospects of improvement would be presented hereafter in them, if it was not that so much

has of late years been done—more seems hardly practicable. But who can fix limits to human ingenuity, or set up boundaries to the new uses of science in the arts? The very fact that the careful application of science to the arts is comparatively in its infancy, holds out encouragement that it is destined to accomplish much more in their advancement. It can take higher and still wider flights, if all unite, like this Institute, in cheering it onward, and in lending the smile of encouragement to what is scientific, and, at the same time practical, in assisting the business affairs of life

A striking illustration of what more may, perhaps, be attained by labour-saving machinery and other scientific improvements, is developed in the progress of the manufacture of cotton—one man in England, within twenty years after the great inventions in spinning, having been able to perform one hundred and twenty to two hundred-fold what could have been done without them; and in the next forty years there was performed with them, what would have required, without them, fifty millions of persons; and in seven years more—that is, in 1833—eighty millions, and now, probably, over a hundred millions. By continued careful attention, it is doubtless destined hereafter to advances, similar in rapidity beyond what now exists here; and of this we have had strong evidence, in a spinning machine at the present exhibition.

There is another mode of illustrating this change, and the grounds of hope for still greater improvement, aided as we are, and stimulated, rather than satiated, by those already made. Thus it has been remarked :—“Even at the present day, the Hindoo, seated on the ground, with his legs in a hole, and the web of his muslin tied to the branches of a couple of trees, throws his shuttle with a skill that, in the end, produces the most beautiful muslin or calico; but yet such is the superiority obtained by the use of machinery, that the cotton grown on his native plains can be brought ten thousand miles, cleansed, spun, woven, dried, packed, and carried back again, and then sold in the province where its woolly fibre first silvered the bud, at a less price than that of the cloth produced by the Indian artisan.”

All with us are more and more alive—active—moving onward—improving.

The mechanic and the machinist—in brief, every person engaged in manufacturing here, from the humble boy that tends the picker, to the presiding genius over a brick palace, with its thousands of spindles, on one of our beautiful water-falls—all, even the female eyes which, far away from their mountain homes, watch those busy spindles, are now and can be made more instinct with new mind, and a new ambition for further excellence.

The laws usually secure to all of them some of the advantages of free schools and limited hours of labour ; and to him who tends the loom or wields the sledge, no less than him who fills a learned profession, the doors of wealth and office and honour are flung open wider, yearly. If true worth, then, be better encouraged in such men, and their minds made more enlightened—as is the constant tendency of the age, and of our American institutions—they will seize quicker on all mechanical improvements, and bring continually more and more intellect and science to their aid.

But in no department of business can greater advancement be made hereafter than in this, by increased information as to the past. In manufactures and the arts, much expense and many years of toil have been wasted in making inventions of what already existed elsewhere. Without more information as to the past, genius is constantly devising valuable machines ; but, when applying for a patent at the proper office, or, having obtained one, when applying for protection to their rights, in a legal tribunal, such persons find themselves forestalled by some prior artist, and all their toil and expense thus wasted in vain—as they would have been saved by examining more fully, beforehand, cyclopædias and works of art on the same subject. Thus, for instance, in 1847, alone, five hundred and fifty-seven applications for patents were rejected, and many of them for this reason. Usually the annual rejections, since 1836, equal in number the grants ; and of the grants, several are, yearly, proved in the courts of law not to be original, and, therefore, become void. These vain labours and expenses could, by this fuller examination previously, be better directed, and thus, beside discovering earlier what of value has been already invented, would invent other improvements, really new, and add much to the existing stock and capital of the mechanical world.

Another means of more progress in manufactures, especially in dyes, in cookery and food, is to make chemistry still more tributary to the arts, till, like the invention and more extended use of chloroform, in medicine, is gradually introduced in more things—perhaps an entire revolution.

It probably was chemistry, more than any other science, which, within a half century, has literally so extracted light from darkness, as to make coal the great agent for illuminating our cities and various private establishments with all the brilliance and steadiness of gas.

And it has been well remarked, that in less than another half century like efforts of science may, from this step, by due care, take a still higher flight in utility, and in glory to the inventor and the age, by using electricity for a like purpose, and with all the harmlessness of gas itself, and all the brightness of a noon-day sun.

Much improvement can be made in saving fuel in fire-places, ranges and stoves, as has been already so wonderfully, since Franklin attempted his, and Count Rumford experimented in both fuel and cooking, for domestic comfort and household economy. Indeed, repeated, cautious, severe experiments, like theirs—the *experimentum crucis* of Lord Bacon—as to all novelties, before they are adopted, can be made a great instrument of safe progress, and, in this way, a common error be escaped, of deeming every thing new an improvement, when it should be only every thing new that is able to bear well the test of trial. Observation and calm reasoning must accompany all this ; and the benefits from them have seldom been more strongly evinced than in substituting the hot for the cold blast, in the manufacture of iron, saving from one third to one half the expense ; and if like attention shall be made here to other improvements, and especially the use of anthracite coal, in that business, we may, ere long, with our vast mineral resources in both articles, make iron for half a world.

Then, if not now, this dark metallic stone will be found to come near the true philosopher's stone ; and if not turning all it touches into gold, will be far more useful than gold itself.

If we do not add to it, also, the manufacture of steel—permanently and beautiful—I shall be much disappointed, from the fine specimens exhibited to-day from New-Jersey.

Another great improvement in machinery, will be in the economy of power to move it.

Judging from recent improvements in imparting motion to it, much more can yet be accomplished, without relying greatly on gun-cotton or gun-powder, or on air vacuums, but merely by increased attention and science in using, in a more effective manner, our numerous and beautiful water-falls, as well as reservoirs, and resorting oftener to the standing or stationary steam-engine. The water-fall, sustained by the reservoir, exhibits in nature almost the beau ideal of that perpetual motion so long sought in vain, in the world of mechanics.

The self-acting machines, that seem almost with mind and thought to perform combined motions, and complicated functions, by one continued operation—such as that for turning lasts and gun-stocks ; that for making pins ; that wonderful one for making cards, without enumerating others which crowd your interesting Fair—are rapidly increasing, and will ere long, form a new era in the arts. .

Again, the protection yielded by the constitution to inventions and discoveries in the arts, will prove an additional encouragement, and be much increased by more reforms in the patent system and patent laws. A most opportune occasion has arrived, and been improved, to place the whole in a more appropriate charge, as in that of the new Interior Department, rather than of the State Department ; and the change already made would be rendered still more effective. And whenever real inventors shall be more fully secured, technical objections obviated by express legislation, and piracies on their hard earned labours punished at less expense, and suitable protection given for new and useful applications of old machinery, as well as for inventions of what is new, an encouragement will at once be felt by inventive talent which will soon add much to the treasures it has already secured in this ingenious country. In any event, it can and will make further advances. Nothing can chain its powers. It can wisely ex-

pand its energies more to help what is most, rather than least deficient—to improve what is most, rather than least important—to advance what will be useful, rather than frivolous or trifling, and useful to millions rather than a few. Genius thus employed, when not duly protected by legislation, or rewarded by gain, can, and thanks to a kind Providence, will often find its own great reward, in the consciousness of its own noble efforts, and in that honest fame which cheers onward many of the benefactors of the human race.

In truth, often new discoveries, instead of disheartening us as to making more, should prove an encouragement, by being new steps to mount higher, or by being only one stage in the growth or development of the whole tree. After obtaining from fifteen to sixteen thousand patents which have been issued here, American ingenuity is so little exhausted or daunted by the difficulties it encounters, that yearly, near fifteen hundred new applications are still made, and from two to five hundred, granted. It must be gratifying to this Institute, that the State in which it has long assembled, appears to have the lead in inventions, taking out quite one-third of all the patents allowed annually; and that the remarkable proportion to this city, which is more immediately influenced by its exhibitions, is near forty-five per cent of those granted to the state, and fifteen per cent, of all those issued to the whole Union.

Commerce, last, though not least, opens likewise a wide field for additional improvements.

By continuing to spread it over every portion of the globe accessible to sails or steam, we shall be likely to get more into the heart of new governments, like the centre of Africa through the Niger, or like many islands yet unexplored in distant oceans. We may thus discover new articles of trade, or of food and clothing, or new arts or new markets; or win the glory to introduce literature, civilization and a true religion where they had never before cast their cheering radiance. The exploring expedition followed up; the track of our whalers pushed with more care, as dangers multiply; the survey of our thousands of miles of coast completed; our ocean and lake borders furnished with still better light houses, lights and reflectors; more treaties formed, binding nations more closely together for mutual trade; in short, peace

more cultivated, so as to render all more friendly, and hence all more prosperous : these will gradually ensure large advances. They will make commerce actually what she has been called figuratively, "the golden girdle of the globe."

We shall thus be able oftener to carry with us, and to more countries, not only our spinning frames and our looms, with their useful products, but what has still greater charms for patriotism, our school books and bibles, and free constitutions and equal laws, and to obtain in return, it is hoped, some other, if not so great good. One of the anticipated benefits from these causes will be the wider diffusion of American principles. It is not that commerce ought to be used to propagate political principles, unacceptable to other governments, by whom it may be hospitably received : and thus, as once in China and Japan, cause jealousies even of our holy religion, when accompanying them, and terminate in the violent expulsion of both. But that one of the inevitable consequences of all foreign commerce is to bring opposing opinions together, and to give, in the end, a mastery to the best. Such, too, is the zeal of our people in behalf of their principles, civil and social, no less than political or religious, that wherever the American stars float, whether over the Atlantic or Pacific, or Mediterranean or Baltic, American opinions and American notions, as well as American products, will become more and more known ; and it surely cannot be regretted by ourselves, if, by increased commerce, and without fire or sword to propagate them, they should more win their way to favour, create new tastes, and often revolutionize the public mind, and gradually reform the governments, born in ages more dark and unpromising.

What we have seen already in late years, shows how much American influence and character in commerce can be improved still further, by increased temperance among seamen, increased attention to their religious instruction, and increased education diffused among them. Respectability and integrity will be more firmly secured in our commercial intercourse, by every advance in these ; and as they beget more confidence they will beget more business, and make our mercantile marine, as well as navy, be regarded with favour in other hemispheres, even under other planets and stars to canopy them. This

moral power, thus increased, will also yield greater protection to all under the American flag ; and our own people will feel less inclined to disregard a decree of one of our humblest courts, though reaching them in the farthest islands of the Pacific. Any of the crews of our whalers and sealers, if not of the "sea lions," fitted out by Cooper and Deacon Huntington, must, by these causes, and increased care and certainly in executing the laws, be made more and more sensible, that he is as sure of redress for wrongs, or of punishment for crime, on his return to New-Bedford or Stonington, as if a marshal was at his elbow in Palmer's land, or a judge was holding his sittings in the cabin of the whaler. Aided by all these ameliorating influences, this invisible, but almost omnipotent power of the law, will, by commerce, move on more steadily, and ere long will be felt in the darkness and distance of remotest seas, almost as strongly as under our own eyes, in the streets of this great metropolis.

Beside the progress in foreign commerce, tending so much to improve and make a brotherhood of all people, what vast advances can, by proper attention to the subject, be made in the internal commerce of a nation which possesses the immense territory of ours, with rivers running through fifteen to twenty degrees of latitude, and with inland seas, covered by steam and sails, to accommodate millions on and near their borders !

See not only the steamboat, thus penetrating wherever navigable water flows, but the rail-road car, disturbing the slumbers of our mountain ravines, and carrying its shrill whistle through almost every village, to increase the blessings of commerce among all who repose under the banner of our hallowed Union.

I enter no debateable ground as to whose expense great internal improvements should be made, under the restrictions belonging to our political systems, nor whether much exists in such objections as I once heard in the Senate, to removing a sand-bar at the mouth of the Mississippi—the great Mediterranean Sea of some eight or ten sovereign states—that "it had been placed there by God and Nature, and hence should remain," nor to what particular localities they ought to be applied, except that they be those of national importance

to foreign trade, or to internal commerce among the states. But this question will be one of diminished magnitude hereafter, as the enterprise and capital of our people have at last attained such a giant growth, that where a prospect of remuneration exists, whether with or without public aid, mountains will be tunnelled or cloven down, vallies filled, rivers bridged, sand-bars removed, and harbours excavated. Already have the iron rail and steam-horse pierced through the spurs of the White Hills—though sustained only by private means—overcome in like manner, the ridges of the Green Mountains, and are fast approaching, nothing daunted, the Alleghanies—and seek a passage through the gorges of the Rocky Mountains, even to the Pacific without fear or faint-heartedness, if but backed by grants of public domain, which thus applied, under proper guards, are certainly in the end, most likely to enrich the donor most. Our length of railroads, already opened, exceed 6,500 miles, or those of Great Britain by more than half of all hers; and should one be extended from the Father of Waters to the mouth of the Columbia river, it will, at its great dépôt on the Mississippi, as some have computed, be not over two and a half days travel from any of our large cities, and not over twenty-five from any such city on the globe; thus promising to become the great thoroughfare for much of the commerce of Asia to both Europe and America.

But as this whole country cannot possess railroads to every farmhouse and work-shop, the common highway must be made oftener to succeed the bridle path—the turnpike the highway—and, on moist soils, the plank road the turnpike—the ferry the ford—the bridge the ferry,—the light and scientific bridge, the clumsy logs of old—in order to improve more the commercial intercourse among towns and counties, even in the newest regions. Till these are accomplished, we should no more remit exertion than we have to carry a bushel of meal on a horse better than with a stone in one end of the bag, to balance it in the other, or to use the draft of oxen by their shoulders rather than their horns or tail.

Science is daily pouring over commerce, no less than manufactures, and agriculture, more of the blessing from its beneficent discoveries, and cannot but increase further the safety and size of it on the ocean,

by the progress making in more accurate astronomy—in instruments for distant observations, and in skill to calculate them—in knowing better the influences of magnetism, and other substances on the needle—in learning more carefully the causes and courses of winds, storms, and currents, and in protecting vessels more fully from lightning and the havoc of infectious disease. Charts as well as surveys, can be more improved, life-boats forced more generally into use, and accidents in steamboats be more cautiously guarded against. The vessel itself, already so perfect in beauty and strength, from rude plank, tied together with hide thongs, as now near Bhering's Straits—and from the unwieldy Chinese junk, but little better than a raft, and little safer than the distended goat skin of the Euphrates, or the bulrushes of the Nile, or the birchen canoe of the Indian, can still more be improved here by timbers better selected and seasoned—by forms better suited to ensure speed and strength, and by cordage and sails better fitted to withstand the strongest gales. We must look also, to the increased use of iron, in navigation, no less than all the arts, as one sure means to attain greater strength, as well as economy—encouraged by what has been already effected in commerce by the iron beam and knee—the iron pillar—the iron cable—the iron anchor—the iron rail and iron locomotion. Every new article of much trade can also, in time, be made to contribute largely to the prosperity of both domestic and foreign commerce.

Thus, cotton and coal, and lead and gold, furnishing no freights here a century ago, are becoming the most valuable, as well in the coasting as the carrying trade; and the first three are already here mines of wealth to the commercial world, no less than to the arts. By increased rapidity of communication, through means of new forms to vessels—new routes or tracks—new knowledge of winds and currents—no less than by the new powers of steam and the magnetic telegraph—speeding so marvelously the intercourse between inhabitants of separate as well as the same countries—we shall yearly bring the whole earth into a narrow compass—almost annihilating distance—making nearer and better neighbors of most of mankind—and enable all to improve by all, with a rapidity scarcely yet dreamed of.

Beside these special teachings, by the great school master, time, to assist still further progress in each of the industrial interests we are anxious to promote, there is a general and striking lesson, inculcated as to all equally, by their tendency, already shown, to advance each other, when exercising co-operation and mutual encouragement. Their harmony, their friendship, and assistance to each other, must, therefore, be more promoted in future, as one of the surest guarantees of further progress in all of them.

This will prove, also, one of the strongest means to elevate higher the condition, and multiply the numbers and riches of the whole human race. We have already seen, that by increased skill and improved implements in agriculture, the means of food have become cheaper and far more abundant, so that many more millions in manufactures and commerce, no less than agriculture, are able to be sustained, and all in a better manner. By like increased skill and machinery in manufactures, aid is not only given to agriculture by superior tools, but myriads more in all pursuits can be well clad, and at less expense. From these improvements, combined with some others of a medical character, the bills of mortality in several countries exhibit fewer deaths in the same number yearly by near one fourth. And by like causes commerce has contributed to like ends, and can do more hereafter for agriculture and manufactures, by transporting for them at a much lower rate, every thing bought and sold ; and thus, at the same time, can maintain more widely the more frequent intercourse among the great family of nations, which in all ages promotes so much the progress of civilization and peace. Indeed, continued or further progress seems imprinted deep on all these important branches of industry, as a part of their natural destiny, and as strongly as are imprinted the footsteps of Deity on earth, ocean, the heavens, on even the marvellous shell and flower. Because every improvement, added to them, makes them more powerful to advance still further ; imparts new strength or means, and should animate rather than discourage future efforts.

To conclude, in respect to the future encouragement of the whole of the great branches of national wealth, it may be well to attend more to increased beauty in all things connected with them. This

can be made a means of attracting to all greater regard, and consequently more attention to improve them.

It has been justly remarked, that "it was a deep and beautiful fancy of the old painters, to crowd the back grounds of their pictures with angels' heads and wings, and thus to surround their subjects with an atmosphere of love and beauty."

If beauty be not the lever which moves the world, it is generally a powerful loadstone to attract it. Thus the sailor is attached to his craft, as to a beautiful woman, when smitten by her graceful masts and queen-like movements; and every American is justly proud of the superiority in appearance of our own ships, usually, over the darker and clumsier vessels of Europe and Asia. So the mechanic exhibits, with gratification, his polished tools, his beautiful buildings, and his elegant fabrics of cotton and silk, rivalling for common use what once adorned only royal forms. And the farmer, though brown with toil, enjoys, and points gladly to his blooming orchards, his luxuriant gardens, enlivened by the music of his bees and birds, and damasked with flowers of every rainbow hue; to his golden harvests, his smiling pastures, his waving woodlands, his picturesque hills and dales, and silver brooks or glassy lake, bordered by fleecy flocks, noble bulls and finely formed horses, till the whole landscape brightens into one more enchanting than ever Claude Lorrain's or Doughty's—for "who can paint like nature." And amidst this, and by this, he is animated with all the ambition to improve further, which distinguishes the most aspiring artist or poet.

There is a beauty, too, in life itself in all these pursuits, which should still more be sought out and cultivated, and thus still more endear them. For though the strong arm of the husbandman may not have idly buffeted the serf at Newport; nor his lips have sipped in luxury the sparkling fountains at Saratoga, yet he will, in time, learn more, and more not to envy others thus employed, if left himself to indulge in the healthier and richer enjoyments of the haying and harvesting of the north, (finding even labour a pleasure,) and in the admiration of Nature's beauties and all her marvellous works around him, and in the heartfelt welcome at home, by wife, children and

friends, on his return at dewy eve; and in the cool twilight, satisfaction of reading news from all quarters of the globe, and gathering from books useful knowledge, as well as sound morals, and in expressing thankfulness to Providence, under his own roof, his castle in our free country, for his fortunate lot of liberty and independence, over the slaves of despotism in less favoured lands.

“O fortunatus nimium, sua si bona norint agricola.”

The mechanic and manufacturer, by cultivating a taste for like habits and reflections, must be able to participate more and more in some of these enjoyments; and will find all the nobility of their nature more excited and gratified as becomes men, by taking an active part in the agreeable business of self-government, in attending the polls, and the debates of the stormy forum, and in helping as jurors, to administer “the stern decrees of law.” The children of commerce, likewise, though not without anxieties, find many beauties and and pleasures strewed over their paths, as the sailor, however rough or hardy, gazes at times on the sublimity of the deep blue ocean with rapture, and, after the vicissitudes of calm and storm, hails a glimpse of land with an exultation, which makes him forgetful of all past danger. And the merchant, for whom he freights riches from every clime, amidst some fluctuations in fortune, often enjoys a prosperity which opens new avenues to happiness, in making munificent donations to public charities, in adding to his country public buildings of architectural splendour, and in becoming inspired, like the Lorenzo De Medici, to fill the marble palaces where is treasured his household goods, with furniture still more chaste and classical, with books more practical, and with richer paintings and statuary, even American statuary, which may rival that of Phidias or Praxitiles.

By cultivating pleasures like these, and a love for all which is or can be made beautiful in these pursuits, no doubt exists that the aspirations or excellence in them will become constantly stronger.

A single other suggestion, which belongs to the encouragement and protection of all these kindred pursuits, and I have done. It is to treat them all with increasing respect.

*“Let not ambition mock their useful toil—
Their homely joys and destiny obscure.”*

Labour must be more and more regarded as honourable in all. Whether in the scorching field, or the work-shop, or on the vessel's deck, honest labour must be protected, its rights guarded, and as is done by your association, its productions greeted with an encouraging welcome.

In this way the march of all the great industrial pursuits among us will be likely to continue onward ; and we shall enjoy the high satisfaction of doing something, in our day and generation, to promote their desirable progress.

ADDRESS

On the Progress and Improvements of the Mechanic Arts, delivered
at Castle Garden, Oct. 9th, 1849.

By Rev. JOHN ALBURTIS.

In pursuance of the plan adopted by the Board of Managers of the American Institute, for the encouragement of inventive genius and practical talent, it has been deemed advisable during their annual exhibitions, to call the attention of those who may be present to subjects connected with the particular objects of the Association. On this occasion, that which has been chosen for your consideration is the Progress and the Improvements that have been made in the Mechanic Arts. And than this we are fully persuaded there is none more interesting in its nature, or of greater importance in its results—a branch of which, in the days of His sojourning among men, the Great Master, whom we reverence, made for a season, his regular and daily avocation. The Creator himself has set before mankind His own example in planning and constructing the vast machinery of the natural world—in becoming the Builder and Architect of the Universe—in making the golden fretwork of the skies, and in wreathing bright garlands of flowers, and in spreading a rich carpet of verdure to adorn and beautify the earth. Exquisite taste, and consummate wisdom, and unequalled excellence are manifest in His works. And if we would attain to the perfection of art, we should study in all our plans and undertakings, to adhere as closely as possible to, and to copy Nature.

AN

Agriculture is an art, in the prosecution of which, we are necessarily led to contemplate the method of the Divine procedure, and to regulate our movements by the laws which are impressed upon the material world. It is both a noble and delightful employment, worthy the ex-

ercise of man's best faculties, and calculated to improve both his mind and heart. It has been by many considered the most exalted and praiseworthy of human pursuits. It must be remembered, however, that Agriculture, like everything else, is dependent upon the Mechanic for the very implements that are essential to its existence. Without the Mechanic, we should never hear of the Farmer. If the earth were at all cultivated, it would be with the rude tools of the semi-barbarian or the savage, and as a science or an art, husbandry would be unknown. To the Mechanic we are indebted from the very outset, for the beautiful and variegated gardens and fields which captivate the eye, delight the senses, and supply our wants. He constructs the neat and pleasant cottage, the rich and elegant villa, and the magnificent and costly mansion. He builds the Farmer's barns, he furnishes his house with the necessary utensils ; he manufactures the different fabrics for which he and his family find use ; and who, but mechanics, have founded and established villages and cities, whose glittering spires look aloft towards heaven, and whose spacious halls, and splendid edifices, and gorgeous temples, are the wonder and admiration of the world ? Who but they have the intellect to design, and the perseverance and skill to execute those monuments of art, which, for solidity, and grandeur, and beauty, seem almost to rival the works of the Great Architect himself ? Who but a Mechanic can bring to his aid the different elements, and reduce them, in subjection to his will, to perform more, a thousand times, than could be achieved by human labor ? Mechanics make our steam engines, our mills and manufactories, our canals, our railroads, our merchant vessels, and our telegraphs, and furnish us with every necessary and useful implement, whether of peace or war. It is through their instrumentality we enjoy the luxuries and comforts of every distant clime, and, as a consequence of their industry, and the result of their skill and labor, we can send even the winged lightning to do our bidding, and execute our errands at will. "We make our ministers flames of fire."

We know that it has been with some of the fashion, to undervalue and look with indifference and even a sort of contempt upon the working man and Mechanic. But if there be a profession requiring a high order of intellect, an unusual degree of moral courage, and a full proportion of muscular and physical strength, it is that of the Me-

chanic. If any avocation demands the complete development of all the powers which constitute and designate the Man, it is the Mechanic's. What is your fantastically dressed and gaily caparisoned apology for a human being ; with hands too delicate to come in contact with any thing pertaining to the rough world, and limbs too nicely strung to sustain his enervated frame, whose muscles, for want of exercise, are without strength to perform the office for which they are designed—whose brains is as barren and unproductive as his life is devoid of value or interest—what is such a poor semblance of humanity—and this only in outward form—compared with the hardy, industrious Mechanic, the pride and ornament of his race, and nature's nobleman ? Your purse-proud, fashionable, vacant, almost idiot, may, it is true, pass him by with neglect, or, it may be, sometimes deign to bestow upon him a nod of recognition ; but in that unpretending, humble son of toil, dwells a spirit which can wing its upward flight amid regions of thought, and traverse at pleasure unexplored worlds, in search after knowledge ; whilst the gaudy, giddy trifler must forever remain buzzing about his ephemeral, transient pleasures, incapable of raising his ideas above the objects that impress or gratify his senses. It is exercise and energy, the employment and constant use of the powers of the mind and body, that can alone produce their ample and full development, and for this end, the avocations of the thinking and working Mechanic are admirably adapted.

Persuaded, my friends, that you will agree with me in these considerations of the high character and exalted rank of those who by their efforts of mind, and practical application of the principles of science, contribute beyond the rest of mankind, to swell the amount of human happiness, you may be assured, that it is with no inconsiderable degree, both of pride and pleasure, I shall dwell this evening on a subject in which we, with them, are all most deeply interested. It might not be amiss here to confess the sense of my incompetency to perform this duty in any measure adequate to its great importance ; but this would be only saying what it is usual for all to say under similar circumstances, and which all may say in strict adherence with truth. For if there be any subject that will tax the human powers to their full extent, it is that of man's past doings, his present operations, and his prospective ability, and all these naturally

belong to the Mechanic Arts. Since the day that he was doomed to eat his bread by the sweat of his brow, he has been obliged to contrive and invent, and use every endeavor and artifice in order to procure the means of subsistence. In the earliest ages, or the antediluvian period, he enjoyed, we have reason to believe, much more of nature's munificence and spontaneous productions than, since it became necessary, for his great wickedness, to destroy the earth by a flood. But even then he made advancement in the mechanical and useful arts, and made tools and instruments for various purposes, and evinced a considerable degree of genius and skill. After the re-peopling of the world, in the most remote ages, rapid and astonishing proficiency was made in the Arts and in Science. The Chinese, who claim the highest antiquity, have been from time immemorial, an ingenious people ; and although their progressive improvement has been by no means equal, for the last few centuries, to that of the nations of Western Europe, yet, from the peculiar nature of their government, and its internal regulation, they must at a very early period of their history, have attained a degree of perfection in some of the manufacturing arts which has never since been surpassed, if it has even been equalled. Some descriptions of Chinese manufacture are matters of universal admiration, and they must, from the very circumstances under which they are made, long, and it may be always, continue unequalled. Their china, an article of manufacture deriving its name from them, is probably superior to that which is made in any part of the world. And until very recently, their silk and cotton fabrics took the lead not only among the great mass of purchasers, but were eagerly sought after and bought at very exorbitant prices by the higher and the most wealthy circles.

Besides the Chinese, the Jews very early reached to great perfection in the Arts. For magnificence and splendor, and elegance of architecture and ornament, what building, since erected, has ever equalled the Temple of Solomon ; and yet, exquisite and masterly as was the workmanship manifest in its construction, it was performed soon after their settlement in the land of Canaan.

If we approach the West, or rather the South, still further, we shall find equal evidence of early and amazing progress in mechanism.

among the Egyptians. The pyramids erected before the memory of man, or at a time unknown to the most ancient historian and annalist, have remained monuments of persevering and gigantic effort; to call forth the astonishment and admiration of every successive age. Nor are these the only objects of wonder of what human art and energy have effected, in that once celebrated, but now degraded, portion of the world. Look, too, on what Greece and Rome accomplished in the mechanical and useful arts, as well as those of Music and Sculpture and Painting, to which the fastidious usages of Society have given a different name seeking, of human efforts to elevate the ornamental and pleasing, above those which are enduring and substantial, distinguishing them as the fine arts! Behold the ancient Temples, Capitols, Statues, Obelisks of these once renowned and powerful Nations! See emerging lately from the darkness and ruins in which they had been buried for centuries, the wonders of art that have been taken from the cities of Herculaneum and Pompeii. Go, wander through the streets of those places of the resort and residence of the learned and luxurious of a by-gone age, and you will find abundant and accumulated evidence of the high degree of perfection, both of science and art, to which the ancients had attained.

It is mortifying, indeed, after having commenced with so much excellence, the early history of man, and followed him through different and widely distant portions of the world, for a long succession of years, and the lapse of many generations, tracing at each step, as we proceed, some indication of exalted genius, and progressive improvement, that we should be called to view him afterwards sunken and degraded, and reduced to the lowest and most abject condition. Europe, by the incursions of her hordes of Northern barbarians, become, in Southern Italy and Greece, and throughout her whole extent, the scene of moral and intellectual debasement. For centuries intervening between the overturning and destruction of the ancient Roman Empire, and the discovery of the art of Printing, and the more recent inventions in Mechanics, she lay, in complete subjection at the feet of her savage conquerors, and of that system of feudal and ecclesiastical tyranny, which was, through their instrumentality, introduced. Brute force, muscular power and physical courage, took the place, and bore absolute sway over cultivated taste, scientific attainments and strength

of intellect. The man was degraded to the mere animal, and the creature of sense exalted above the being possessed of reason. We can hardly imagine a worse condition than that of Europe during the dark ages ; nor could it be expected that the arts would flourish, or retain their previous excellence at such a period. It is only wonderful, that, from this state of affairs, a time should ever arrive, when the mind of man, thus fettered and bound, should become emancipated and free, or that, from this gross and thick darkness and ignorance, it should once more emerge into knowledge and light. That so humble an instrument, too, should be employed in effecting this radical change in his condition, so as to transform his very character and nature, is scarcely less astonishing than the change itself.

To an obscure Mechanic of Germany, about whose name there is even a question, are we indebted for the wonderful discovery of the art of Printing—an art which has done more to revolutionize mankind—to raise the standard of excellence—to infuse a noble and laudable ambition—to enrich the mind, and humanize the heart—to improve the manners and regulate the opinions—and to ameliorate our individual and social state than all others ; and in fact, one on which all the rest are, in a measure, dependent for their introduction to general use, and their progress toward completion. Since Printing has been known, the whole system of ethics, physics, both natural and moral philosophy, chemistry, astronomy, as well as the application and combination of the different principles of mechanics, have been improved and advanced in a manner wholly unprecedented in any previous portion of our history. The principles advanced by Lord Bacon—the discoveries made by Sir Isaac Newton—the metaphysical opinions and disquisitions of Locke, established a new era in the thinking and intellectual world. The uncertainties of science which had before prevailed, and which consisted in the most absurd dogmas, that were the subjects of constant wrangling and debate, were abandoned, and facts were substituted for arguments, and experiments actually made and that were to be relied on, led to the formation of rules and opinions. The man of science was thus enabled to proceed with confidence in the application of his knowledge, and could reduce it without fear of failure, to practice. Men could make use of what they had learned ; and their efforts having been successful, they were incited to renewed and still

greater exertion. It was in this manner that they found themselves proceeding, step by step, in the way of important and the most valuable discoveries. Their inventive faculties were called into exercise ; and wherever there was a work to be performed, it became a matter of study and severe thought, in what manner, and by what means, what power should be employed, and what instrument or machine should be used to effect it most readily, and with the greatest economy and perfection.

Nature had provided man with limbs and muscles, as well as mind. These were, in the first place, to be used to the best possible advantage, and to produce the greatest effect. She had also placed here and there, through various sections of the country, valuable water falls, and these afforded a power the importance of which he could, in a manner, estimate and appropriate. But there were other elements in the great store house of nature, which he now began to think of turning to account, and converting to some practical and useful purpose. Heat, applied to water, formed a power which he conceived himself able to govern and control, and the result of this idea was the invention of the steam engine, and its application more universally, and for a greater variety of objects, than any other which had been employed. Heat also is a power, separate from its effect upon water, which is made to subserve greatly the progress of the useful arts. And allied to it, the very subtle element known by various names, as magnetism, electricity, the magnetic and electric fluid, which, in the great and wonderful economy of nature, are probably the same as both light and heat, is now evolved from the bodies which contain it in the greatest abundance ; and being no longer suffered to remain in its inert and latent state, is employed as an active agent, and is sent forward to accomplish the most important results. Man is no longer content to manage what is already made to his hand, and created evidently for his use, but he pries into the hidden recesses of nature, and brings forth her mysterious powers into light and exercise. He is not confined to the simple control of the dull matters of earth, but he travels through the regions of space, and takes hold of "Jove's dread thunderbolts," and directs and wields the artillery of Heaven. Truly may it be said, for it is proved by undeniable fact,

that "God made man after his own likeness; in the image of God created he man."

The present age and the present century is a period fruitful in the most valuable inventions and improvements in the mechanical and manufacturing arts. In no portion of history, of equal duration, has half, or even a tithe, of so much been done in these respects, as since the spirit of independence has been abroad in the world, and the reliance of mankind on their own resources; and we may add, since the establishment of our own free government. The minds of men are less restrained and more unshackled. They have not to contend with the usurpations of tyrants, or the unjust exactions of those who are placed in authority over them. In this land of liberal institutions, it is not, therefore, so much a matter of wonder, that the best and greatest discoveries have been made. We do not wish to arrogate, on the score of intellect or natural ability, any excellence or superiority over others; but certain it is, that we have more liberty, and it is equally undeniable that we employ it more effectively, and have made more valuable improvements and discoveries in the arts, than the subjects and citizens of other governments, even where they have the advantage of greater facilities of acquiring knowledge, and much better opportunities of arriving at the truth from longer experience. Our young minds are untrammelled, and we roam in search of useful information wherever it is our pleasure, and follow the natural bent of our desires and inclinations. We love knowledge for its own sake, and for its valuable results, and there is nothing in the nature of our institutions to hinder or prevent its pursuit. And here I would remark, so far as my own observation extends, and I have had some opportunity, from my intercourse with them, of forming a judgment in this respect, that the men of most thought and practical information, with whom I am acquainted as a class, are our Mechanics. In fact, I cannot well conceive how any individual can become a good Mechanic without both knowledge and skill. He must have information sufficient in the matter of his business, and he must have the capacity to apply it, or adapt it to the objects for which it is wanted; and those in younger life especially should devote much of their time to reading and reflection, as they will have plenty of opportunity to make use of all they know, or shall learn. It is in this way alone

they can emulate the examples of those who have gone before them ; nor can they otherwise expect to add to the stock of improvements or inventions already made. The great object, indeed, to be desired in the progress and advancement of the Mechanic Arts, is of itself sufficient to cause every individual of the profession to enlist his best energies in its behalf. It is in affect, by the multiplication and perfection of the various instruments and machines employed, so to reduce in the event the amount of manual labor required for man's comfort and sustenance, as to restore him, in a measure, to his primeval condition. At first he was permitted to live on the spontaneous productions of the earth, and these were abundant and satisfactory. And if he should be enabled, by his discoveries and inventions, to approximate in any degree to that state once more, it will be one evidence among others, that he is fulfilling the object of his mission in the world.

It is a futile and idle objection urged by the untutored and ignorant, that the introduction of machinery is attended with injury to the working classes, diminishing their chances of employment, and lessening the price of labor and the amount of wages. So far, indeed, as respects the precise manner in which they had been previously occupied, this is, doubtless to a great extent, true. There will be no need of the same number of operatives in the way in which they had before been engaged, when machinery is substituted to do a much larger proportion of the same kind of work ; the services of one individual, with the aid that he shall in this manner receive, being rendered equal to what had been done previously by many. But, then, it must be borne in mind that machinery, by doing a much greater quantity of work, lessens the price of the manufactured material ; and in the same, and still greater ratio, increases the demand for its use. Besides, the very construction of the machinery requires the services of a great number of operatives, who had, it may be, until then remained idle, and those who may for a season be thrown out of employment, will be soon necessarily occupied in a different and more profitable manner. In fact, it has been found that in every instance where machinery has been introduced, it has invariably increased the demand for operatives and has raised the price of labor ; so

that its tendency is directly the opposite to that which has been imagined.

Numerous facts might be stated in corroboration of this truth. But, to give only one instance, and one to which we have already alluded, how great a revolution has been made in the world by the discovery of the art of printing, and how many thousands are employed, and what an amount of wages is paid, the consequence of this invention, and the improvements that have been made in the use and management of types, and in the publication of books. How many type-founders, paper-makers, printers, book-binders, pressmen and others are set to work, who, but for this discovery, would have been obliged to seek other employment? And, who is able to compute the worth of the steam engine, or of machinery which has been invented for spinning wool or cotton, furnishing entire neighborhoods with profitable and constant occupation, and the means of gaining subsistence and even wealth. Nor, indeed, can a single article of manufacture be named in which the introduction of machinery has not been found, or will not prove of great and extensive benefit to both the manufacturer and the working classes. As regards the community at large, it has the effect, by greatly cheapening the article of consumption, and increasing the quantity or amount with which the market is supplied, to furnish vast numbers, who had been able to procure scarcely the necessaries of life, with many of its comforts, and even luxuries and enjoyments. The poor man now, or what we are accustomed to call poverty, is better fed, lodged and clothed, can wear a finer garment, live on more sumptuous fare, and recline or sleep on a more luxurious couch and bed, than, a few centuries ago, could the wealthy of the land, and even princes and kings. Such habitations and furniture, and means of comfort, as are now at command, were, until recently, unknown; and they are chiefly the results of inventions and discoveries substituting the use and employment of machinery for human labor.

But it needs not in this place to dwell upon a truth, which we are persuaded you already acknowledge, and are free to admit. Our duty and pleasure are rather to exhort you to go on in the noble and magnanimous course which you have so successfully begun. With

knowledge and industry combined, a head to devise, and hands to practice, and materials in abundance and variety at command, what cannot man accomplish? Many, my friends, are the inducements held out to you, to persevere in the great and glorious cause in which you are engaged. The wilderness which our fathers found, with here and there a wandering and solitary savage as an inhabitant, has become a fruitful and thickly peopled country. The axe of the woodman has laid low the trees of the forest, and the implements of the farmer have subdued the stubborn soil, and caused the fields to wave with golden harvests, and yield their burdens to the reaper. Our valleys and water courses, through the enterprise of our mechanics and manufacturers, have become studded with flourishing and prosperous villages, and our cities receive, by our canals and steamboats and railroads, the varied productions of Nature and of Art. Richly laden fleets bring the produce of other nations to our shores, and this once wild, and rude and inhospitable land, has become the resort of the learned and wise, the asylum of the persecuted and poor, the abode of the gifted and free. And this wonderful, happy and glorious change has been effected chiefly by the practice and cultivation of the mechanical, and agricultural and useful arts—the arts that insure a Nation's prosperity and peace.

If you want the evidence of time well employed, of talents well directed—if you would see what genius, skill and industry have achieved throughout our land, let the exhibition here this night, through the excellent arrangements of the Board of Managers of this noble Institution, bear ample and conclusive testimony. Year after year, since its organization by a few public spirited individuals, has added to its successful operations, and each succeeding year, by their judicious efforts, has increased the interest of the last. A more imposing spectacle than met our view on previous similar occasions, we had thought scarcely possible; but the variety and perfection of implements and machinery now presented before the public for inspection, are truly matter of astonishment. From the most diminutive but highly finished and glittering instrument, through every gradation, and of every kind, of various form and size, up to the massive and ponderous engine, before whose powerful and perfect movements we

stand in silent wonder, we behold splendid proofs of American ingenuity and inventive skill.

There is no more gratifying and profitable sight, neither in city or country, in gay saloon, or crowded hall, in scenes of mirth or pompous pageantry, than can here be found within these walls. Where, in years gone by, we planted instruments of war, to belch forth destruction in case of an enemy's attack, we now exhibit implements of peace, and greet the friends of humanity with the voice of welcome. And could our voice be heard in places far distant, we would still speak of our country's greatness, and the high and elevated position in society, and of the controlling influence in the councils of our Nation, for which our mechanics and men of skill and genius are hereafter destined. It is now our privilege to tell you, working men, and you who contribute by your productive labor, to the wealth and prosperity of our Government, that upon you its existence mainly depends, and with you it must either rise or fall. And let me, in closing this address, conjure you by all that is sacred in your early recollections—by the deeds of noble daring and valor, and wisdom of those from whose loins you have descended—by their toils and sacrifices, to leave you so rich a legacy—by every idea that is endearing and delightful in the name of home and country—by the strong ties of affection and of blood which bind your hearts to the loved and kindred beings of earth—and, above all, by the more exalted consideration of doing honestly, in the sight of God and man, your duty—employ dilligently and effectually the talents entrusted to your care.

ADDRESS

On the Philosophy of Manufactures, delivered at Castle Garden,
Oct. 1849.

BY THOMAS ANTISELL, M. D.

LADIES AND GENTLEMEN:—It is not my intention, upon the present occasion, to occupy you with the usual topics of a general address. Such have generally for their aim, to prove the utility of manufactures in a community, and their value in the economy of time, and of human power. These points have been discussed in previous addresses, and have been so well handled as to make it superfluous to add more: the very existence of this Fair is in itself the best argument which could be produced.

I prefer occupying your time by dwelling upon some of the varieties of the exhibition, and to call your attention to any novelty of invention or utility in application of the machinery and manufactures around us, and give way to any reflections which arise naturally out of the circumstances of manufactures.

The observer who is unaccustomed to behold machinery in motion, feels confused at seeing in the machine room such an endless combination of wheels, pulleys, cranks, piston-rods, and levers, and is led to imagine that the study of mechanical powers is one above ordinary conception, and requiring a comprehensive intellect. It is not so; out of half a dozen mechanical powers, as they are termed, is the whole display produced, by their varied apposition, much in the same way as the varied results in Arithmetic are the effect of a varied disposition of the integers.

Of these powers the lever is the most prominent in utility, and was probably the first and most ancient attempt to accomplish by a machine what was before the work of the unaided hand. It is well defined to be "a body capable of turning about a fixed axis and acted upon by forces." The common application of this power as pump handles, arms of machinery, &c., are familiar; I shall only notice here the adaptation of the bent lever to the purposes of weighing, as shown in the platform scales in exhibition; in it the long arm is the arm on which the dish is hung, the short arm, bent, is concealed in a box and turns an index needle which moves through a large arc where the weight is read off. The advantage of the bent lever is this—that by its pressure is communicated rapidly, and as rapidly removed, and in its application to the balance, the least weight in the scale dish is immediately read off on the index arc.

Wheels are only modified levers, and exert the power of straight levers more advantageously, and in a continuous manner: thus the occasional momentum of the oar propelling the boat is changed into the more continuous action of the paddle. It is still a desideratum in steam navigation to obtain a paddle wheel which shall expend all its power most advantageously. In the ordinary paddle wheel, with fixed float boards, the loss of power is very great, the float board as it descends striking the water at an oblique angle and tending to raise the boat out of the water rather than drive it onward; as it passes through the water, it changes this oblique position for a vertical one, and it is at this point only it is using its power effectively, for where it commences to rise out of the water again, it is at another oblique angle, lifting a body of water up before it, and tending to depress the boat into the water. The float board which rises out of the water, has the opposite effect of the paddle which is entering the water, they counteract each other, and hence much of the power of both is lost. In the little model of the propelling wheel, which is upon the table, much of this objection is overcome. The float boards in it are moveable, and have a tendency always to retain the perpendicular in their revolution, thus entering the water with little resistance, and rising out of it without creating much back-water: this is accomplished by the off side of the paddle wheel having an additional false side attached to its inner surface, and into which the pins of the float board

enter, these pins are bent at right angles, and pass upwards into the outer frame ; freedom of play is thus given them to assume the perpendicular. In this model, as in most float boards, the figure is that of the parallelogram, this is not the most effective form. Mr. Rennie has shown that the trapezoid figure is equally effective, and is the basis of a patent which he has taken out in England for propelling wheels.

There is a good application of the wheel and axle in the hoisting platform, which may be seen on the bridge, and of which we have a small model on the table. With that power, and the aid of a few fixed pulleys, those tables may be made to rise successively out of each other, and rising to a great height, serve to convey building materials to the upper platform of a building, saving the continual ascent and descent of laborers on a ladder. There appears to be no other limit to its power than the stability of the wooden frame work, and the strength of the cord which plays over the pulleys. There are two sets of platform tables which alternately rise and fall, but which may be made to work singly by putting one cord out of gear. The pinion of the axle is turned by a wheel : by the addition of another wheel intervening, power would be exerted more advantageously, and with rope an inch thick playing over the pulley, a weight of one thousand pounds might be raised up. The saving to builders, by the use of this machine, would be great, for human power is never exerted to worse effect, than in carrying a weight up a height. Thus, if a man going in a horizontal line be able to carry fifty pounds per eight hours (one day) at three miles per hour, the same man can only carry sixteen pounds per four hours at the rate of one and a half miles an hour, the difference being as twelve and a half to one in favor of the horizontal line. This is no small saving which may be accomplished by this machine ; it has also been suggested as a good fire escape.

The patent windlass exhibited, is a beautiful piece of mechanism ; the windlass is turned by a capstan, and these can be brought to bear upon the anchor and the sails at the same time : the hollow axle and the varied movements of the windlass itself must recommend it as a machine which will economize the hands on ship-board very much,

allowing their services to be applied more usefully in some other part of the vessel.

The stability of materials is perhaps better obtained by the putting them together in a proper *form* rather than in choice of the material itself. In all frame work the triangle is that form, and in the trussing of bridges, we see examples of it, as in the model before us of a bridge over Buffalo creek, exhibited by the New-York Draw Bridge Company. It is a lattice bridge, having the trainway about one fourth the distance up from the bottom: The lattice is the only kind of suspension bridge which can bear the impact of a railway train, and much (though not all) of its stability is due to its triangular framing: the railway floor is supported on cast iron arches, and the strain on the sides taken off by cross girders.

In the vertical gate, which is exhibited on the bridge, we have another instance of the triangle producing stability: the diagonal tie of each gate comes to an angle below, and when the gate is closed, with the cross bar laid down as the base of the triangle, the strength of the gate is immediately increased.

In the department of time pieces, Mr. Giroud has signalized himself by the invention of his new detached lever escapement, which he has applied to clocks and watches: it has two points of repose, allows of backward movement, and is a decided improvement to time keepers. It has cost Mr. G. much time and great labor to perfect his invention, he having to make much of the machinery which is necessary for forming the escapement with mathematical precision of outline.

There are few countries in the world blessed by Providence with such enormous quantities of coal and iron as this. Yet from causes, to which I shall by and bye allude, the iron manufacture does not play the important part it should. It is comparatively a new business, being only of a few years growth; hence it is, that in the department of fine cutlery, I cannot find any returns of export during last year, at least not in that quantity which would constitute a national item. Not only do we not export, but the import is very large; for in England three fourths of the whole manufacture is destined for the

export trade, and of that we take nearly one half, leaving little more than one fourth for the rest of the world. We are at present the best market the English have for fine cutlery, and not many years ago we were wholly dependent. Grant Thornburn, in his "Men and Manners in Britain," mentions, "that in the year 1810, when the English Parliament was debating the policy of enforcing its orders of council, and thus making war on this country, one of the blustering fools in the House said, 'that were it not for England, the men in America would have to go with long beards.'"

In the manufacture of iron the ore is generally first calcined by burning it in heaps with coal or charcoal, to free it from water and carbonic acid, the loss of which is about thirty per cent. on the whole. The calcined ore is then transferred to the smelting furnace, generally forty or fifty feet high, and divided into four portions, which act somewhat differently on the ore. In the lowest is the hearth or crucible, and near its bottom are the openings of the *tuyeres* or blowing holes for air to keep alive the burning of the fuel. The fuel, whether coke, charcoal, or anthracite, is carbon; and the ore is oxide of iron or iron and oxygen. The carbon of the fuel unites with the oxygen, forming carbonic acid, which escapes; the iron melts, collects below, and is drawn off at intervals, and run into sand moulds: the casting, from its resemblance to a sow with a litter of pigs, being called pig metal. It is not yet, however, pure iron, for in melting it took in a little carbon, which gave it the property of melting so readily: this is cast iron.

In the smelting furnace, lime is always added for uniting with the earthy and sandy matters of the ore, as it forms a glass which floats on the surface of the melted metal, and is drawn off as slag.

In the conversion of cast iron into malleable or bar iron, it has to undergo the processes of refining and puddling, by which it loses the carbon which before it was imbued with, and which gave it the fusible property; as it loses this carbon it becomes less fusible, more pasty, and ultimately tough, in which state it is passed into the rolling mills, whence it comes out as bar iron.

By the use of the hot air blast, and the conversion of anthracite into a flaming coal, by the application of the steam jet into the furnace; by the placing of dampers at the top of the furnace, and drawing off the cone of flame and heated gases through horizontal passages to the refining and reverberatory chambers, thus economizing fuel, and finally by conducting the heated gases arising from the puddling furnace round the steam boilers which work the rollers, the greatest economy of fuel, and the greatest amount of metal, have been obtained.

By the selection of a pure ore of iron Mr. Salters has obtained, in his foundry at Newark, fine bar iron, a sample of which is on the table, without passing the ore into various chambers; but has his furnace so arranged, that entering at the top, in a pure and calcined condition, the ore when it arrives at the bottom, having lost its oxygen, and combined with the minute quantity of carbon, is fit at once for passing on to the mill. The ore which is used in that foundry is the magnetic oxide.

This ore is mixed with quartz, hornblende and fine siliceous grains, to separate the oxide from these, the Electro-Magnetic Ore Separator now exhibited, is well adapted. This apparatus is a cylinder round which are inserted rows of soft iron projections, which when the instrument is in use, represent so many magnets, and attract the magnetic iron oxide upon surfaces, thus withdrawing the oxide from the mineral impurities. The cylinder revolves, and the powdered ore is carried on a frame to its under surface. A horse-shoe magnet surrounded by a coil lies in its centre, and is in connection internally with the soft iron projections, and externally with a galvanic battery, by which the electric current is conveyed to the interior of the cylinder; by the alternate breaking and renewal of the current, the projections become magnets, or lose their power; they seize the oxide, carry it on their surface part of a revolution, and when the contact is broken, the oxide falls off into a receiving vessel. The ore is thus rendered as pure as can be for the smelting furnace.

The gas with which the machine room is lighted, is facturated by Mr. Baxter, in a small room outside. He has adopted the plan of

obtaining gas, originally patented in England by Mr. White which consists in forming olefiant gas by dropping into the heated retort, resin previously melted ; as it drops on the red hot iron it is immediately gasified, and the products are passed into the hydraulic main ; in a second retort, also heated by the same furnace, are placed some charcoal and iron turnings ; on these water is dropped, it is decomposed, and the result is the formation of hydrogen and a little carbonic oxide ; these are also delivered into the main where they mix with the olefiant gas, both are carried to the gasometer, where they are mechanically mixed, and driven into the supply pipes. After the separation of the tarry products, this gas requires little further purification, and in this respect has an advantage over coal gas.

Its chief recommendation is the capability of producing it so as to light small buildings, hotels, factories, and single street blocks. It may be inserted in any furnace employed for other purposes, and the same furnace which heats a house daily may at the same time produce its gas.

The cost of production is very small. Forty pounds of resin and fifteen pounds of water will produce one thousand cubic feet of gas, which gives a brilliant light, and of which five feet will go as far as ten feet of the New-York Gas Company's gas. For one thousand cubic feet the Company charge four dollars, (much too large a sum). Resin is one quarter of a cent per pound, and calculating all expenses, the same quantity could be manufactured, with profit, under fifty cents. Mr. Baxter deserves credit for introducing this cheap and good gas into this city. The gas with which this city is lighted, by both Companies, is very bad, and very dear, and nothing but monopoly could sustain it in its present condition. Next to good water, the most essential necessity for a city, is good light, and cheap light.

In European cities, gas is manufactured from coal and sold at one third the price which the New-York people pay for it. Manchester pays only one dollar and a quarter ; Dublin, one dollar and a half ; and London, one dollar and three quarters, for what New-York City pays four dollars ; and in the two last cities there is no neglect of lighting street lamps at full moon season. There are several uses to

which gas is applicable, and is applied to when it is cheap. In large hotels and eating houses meat is cooked by gas. And much of the iron of fine cutlery in Sheffield is *steeled* by subjecting it to the gas flame.

I shall now pass from the objects exhibited, to some reflections which arise out of this exhibition.

When we look back upon the history of the country, we find that so long as it was a colony it prospered little in art and trade ; and the date of the assertion of independence found the agriculture and the manufactures in a very backward condition. From that time the agricultural interest has progressed at a rate with which manufactures have not all kept pace.

The first export of cotton to Liverpool took place in the year 1785, when the *Diana*, of Charleston, landed one bag ; a vessel from this port landed another, and that year there was a total of fourteen bags exported in four vessels. In the year ending the 30th of June, 1848, the value of the export was \$61,998,294, and the quantity exported ending the 1st of August, 1849 was of much greater value, being 2,227,844 bales.

The vastness of the cotton trade, and the suddenness of its growth, naturally astonishes us. It is the agricultural wealth of the Southern States. It would be well to recollect that it is England's manufacturing wealth. We export nearly five-sixths of all we grow; in exact numbers, in the year 1848,

The total cotton crop was.....2,726,596 bales.

The export of 1849, as above,.....2,227,854 “

which with a small stock on hand, left 518,039 bales for home consumption

England is the chief buyer of the raw cotton, and the chief manufacturer of cotton prints, and this country is at present dependent on that island for the chief supply of cotton piece goods. The British export of cotton goods of all kinds, in the six months ending June,

1849, was 596,370,322 yards, of which the greater quantity came to this country.

There is, however, some comfort exhibited by the returns of the last twenty years : from these it appears that the imports now of plain calicoes are one-half what they were in 1830, and in printed calicoes between one-half and one-third ; so that our cotton manufactures are gradually increasing, and at the present time represent one-fifth the value of all manufactured goods.

The exports of cotton manufacture are small, not having increased of late years, standing nearly at the same figure as in 1829 ; so that our increased supply has been for home consumption, an increasing population demanding it.

The materials for iron manufacture are abundant in this country, and there is sufficient skill and energy to develop it to any extent. Yet iron manufacture is, like that of cotton, a small business as yet.

The first manufacture of bar iron in Pennsylvania, with anthracite, was in 1845. It flourished amazingly for the first sixteen months, but the tonnage has since gradually decreased every year, and at present is a small fraction of what it was.

The iron manufacture is a most important one, employing such a vast number of hands. The Mount Savage works, in Maryland, employed forty thousand men when in full work. This and most other furnaces are out of blast, owing to the importation of English iron, at such low prices, that the home manufacturer cannot produce his iron for the same price at which it is landed on the quay in any oceanic city here. For want of other markets, English iron has, within the last few years, being coming down, and the *ad valorem* duty facilitates its admission. It is conceded by all manufacturers, that a *specific* duty replacing the *ad valorem*, would at once allow all the furnaces of the country to go into operation.

In the exhibition, the manufacture of fine cutlery, and that of cotton goods, do not bear that proportion to the other articles exhibited,

which such important branches of trade should—let us consider the reason :

In the case of cotton and iron manufactured goods we stand thus:—

We do not nearly supply, by home manufactures, what printed cottons we want.

And we supply only a small part of the fine iron and steel manufactures required.

A few interesting questions arise :

How can we remedy this ?

How can we produce enough ?

How can we compete with England ?

England has already the market.

A large capital invested.

A manufacturing population working at low wages ; poor, and therefore always willing to work at reduced prices,

This country has to make its market, has small capital diffused.

A manufacturing population in easy circumstances, and working for reasonable remuneration.

It is the concentration of capital, and the misery of the mechanical classes, which enables cheap goods to be produced in England.

Now, God forbid we should ever come to the same pitch of concentration of capital into a single hand, and an accompanying destitution of the manufacturing workmen.

The ultimate good of manufactures to a country is the employment and fair remuneration of all engaged, not the enrichment of one individual ; and looking at it in this point of view, it would be more advantageous to us to raise and foster our manufactures by placing a protective duty on imported manufactures, than that our social condition should descend to anything like the condition of Birmingham and Manchester, of Sheffield or Swansea.

Those who oppose protective duties, do so on the ground of philanthropy, asserting, that such only benefit a few manufacturers, and that it is an act of injustice to the community to deprive them of the

liberty of buying where they like, and what they like, at the *cheapest* price. But what is the *cheap* article? an article is not cheap because it can be bought with a small sum of money, but it is cheap when the purchase of it costs the buyer *but little sacrifice*—when he feels it less. Thus with the case of iron and cotton in view—is printed cotton cheap at five cents a yard to the unemployed iron worker? would not double the price be cheaper to him, the purchase less easily felt, if he were in full work and good wages?

The cry of *free* trade began in England, in the manufacturing districts, in order to support their factories in full work, and because they can produce at less expense, they therefore inferred, that it would be for the benefit of the whole world if they were left to supply all the civilized market with manufactured goods. Put into plain language, the free trade cry may be expressed, as we might suppose an English manufacturer to soliloquize, thus:

“We, English manufacturers, grew up since the middle of the eighteenth century; we have sunk an enormous capital, incur great yearly expense, and employ a large number of people; we are constantly producing, and we have long since glutted our own home market. European wars have been of great service to us, as it prevented states being manufacturers, and made them buyers from us; those who would not buy from us we fought, and those who would, we gave them money to keep at peace. From Europe we have passed into Asia, and have built up a large empire in India, have sold to the petty princes their own Cashmeres, and to the Ryots their own cottons, they paying us for manufacture; not content with this, we have fought with the Chinaman, to make him take our goods. We have planted colonies in Australia, Borneo, Cape of Good Hope, and Canada, in order to create markets. We have kept the dissolving Republics of South America together, that they might buy from us. We have glutted every market; we have over-produced, and are producing still, and unless we find a more extended market, we, and with us, the English nation, must go down. We address you, good easy people of the United States, we hear that you are talking about protective duties and home manufactures; that you have learned that fifty per cent. is the profit on cotton *manufacture*, while it is only nine per cent.

profit on its *growth*. Now we English manufacturers can produce much cheaper than you, and why not let your people by the cheapest articles. We buy raw cotton from you, and there is reciprocity ; we develope your agriculture and you support our manufactures. That is the right feeling which should exist, and the international philanthropy worthy an enlightened age. Continue to do so—continue to be satisfied with nine per cent. and leave us the fifty. If you do this we shall flourish—if you do not we shall cease to exist as a manufacturing people ; and thousands of your *people will be supported by cotton and iron manufacture, and the happiness and welfare of the Union greatly augmented.*”

But whether protective duties be adopted, or free trade encouraged, there is one more method by which manufactures in this country may be promoted and rendered stable. I mean by the adoption of an education, having for its basis the mechanical and useful arts. Our manufacturers ought to learn the theory of their occupation, and our machinists and inventors ought to have a sound and thorough education in the mechanical and physical sciences.

Look at the records of the patent office, and see how patents are taken out for asserted improvements, which are no improvements at all. What a waste of labor, time, and money for what results in nothing.

This has been a large exhibition, a greater number of articles exhibited, a greater variety, and more novelty of design and finish in execution, than has yet been presented to American inspection. So far well—we ought to be proud of it—but do we recollect that after all, these machines and these inventions, are the exceptions ? The failures are the greater number. One man has spent four years of his life in making these improvements in a capstan—he has been successful. Another spends six, another ten, and here are the results around us. But far more numerous are they who have spent many years, and wasted away their existence, in the dreamy hope that success was just at hand ; that their invention was complete—that their machine was the paragon in saving time and power—and after fruitless efforts, have sunk down through society into the grave, with

wasted means and disappointed expectations. This country cannot afford this misapplication. The inventive faculty is one which is very widely bestowed, and all that it requires for success is a knowledge of what it works with and what it works on.

I cannot see why there should not be in this large city public free schools of design, schools of art and manufacture. If it be acknowledged to be a state obligation to educate the youth, let them be educated in their life business—in that education which their country will profit by.

In this country there is little opportunity for learning a trade or art thoroughly. Apprenticeship effects this in Europe. Public education should do it here. Every mining district of Germany has its school of mines and manufactures.

In Paris there are several public institutions in which the most scientific minds of the day are employed in orally instructing classes upon the present condition and recent improvements in the arts of dyeing, manufacture of paints and colors, of cotton prints, of porcelain and glass. There is a central school of arts and trades, and a school of mining and agriculture, with branch establishments, in the large cities of France, all under the direction of the minister of the interior, and admission to most, gratuitous—to the rest for a very moderate sum.

Britain has now numerous schools of design. This country should not be behind in the race. She should give in her public schools an industrial education—an education for trade. Such a school ought the free academy to be—and such a school, does a large manufacturing and a commercial city like New-York absolutely require.

ADDRESS

On the Patent Laws, delivered at Castle Garden, Oct. 1849.

BY GEORGE GIFFORD ESQ.

MR. PRESIDENT, AND LADIES AND GENTLEMEN:—This is the twenty-second great National Tournament of artistic skill and inventive genius ; representatives from the shop, field and laboratory, have again come forth and rallied round the standard of the American Institute ; the brilliant signals of laudable competition are again displayed to admiring multitudes, and the invincible champions in mechanism are again in the field, in vindication of their country's

It is a glorious cause, and I congratulate the Institution under whose auspices the noble enterprise proceeds, and still more, the country, on the prospective results.

In the humble part which I shall take on this occasion, I shall have the pleasure, in response to the invitation with which I have been honored, of calling up for consideration the subject of the Patent Laws.

In glancing over the present aspect of society, contrasting the present with the past, and observing the results of each succeeding year, the most striking feature arresting the attention is the successive changes wrought by inventors. The most distinct and enduring marks now left upon the broad ocean of time, as men and nations glide perpetually on, are made by inventors. On looking back through the vista of past years, monuments of their erection, numerous and towering along the track of time, obscure other events and catch the view as the most prominent and conspicuous objects by which to trace the progress of society.

There was a time of centuries duration, when poets and warriors marked and controlled the record of events, when the energies of men were directed against each other, and their genius lost in constant and protracted neighboring wars ; and when the progress of society was little else than progress in conquest, dominion and changes in military power. But now a great change has been wrought ; the policy of the world has become more utilitarian ; inventors have extended intelligence and civilization, brought countries in a close contact, mingled their inhabitants, assimilated their interests, and made near and friendly neighbors of distant and hostile strangers. Society will ferment, strife will arise, and wars will ensue, but it will be but the emetic of intelligence removing the bilious incumbrance of degrading oppression. By aid of inventive genius in supplying implements of war, the hostility of nations is brought to a more speedy termination, and great results attained, and progress made, at the expense of little blood. The tendency of the age now is, not to honor victory as such, but barely victory associated with a righteous cause.

The most inveterate and enduring war now carried on, is that waged by the allied forces of intelligence and inventive genius against ignorance and the elements of nature.

Now inventive genius has seized the reins of society, and commands its progress. What the condition of society now is, in all practical operations, compared with what it was a century ago, is the result of this contest. What the aspect of things will be a hundred years hence, compared with what it now is, will be a result of successive conquests in this struggle.

But what is the inventor's reward ?

The ancient military chieftain, whose valor characterised the age in which he lived, was stimulated by the prospect of power, and cheered on by the trumpet tongues of poets and orators.

But what influence is to actuate this new commander of social progress, this new modeller of the manners and customs of nations, and this new director of national destiny ?

Far more endurance, fortitude and energy, in self-denial, disappointment, poverty and discouragement, is required in the inventor than in the warrior; and yet where is his prospect? What poets or orators swell his fame? How have his energies been aroused, and his courage sustained, and his conquests secured and annually multiplied, until the results have already become the controlling influence in the condition and progress of society?

No questions appertaining to the temporal interest and secular affairs of man, can command the attention of the present age, of more importance than these.

But they are answerable. The inventor's stimulant has been the system of policy adopted by civilized nations, of securing to the author of a new and useful thing, a personal, individual and substantial interest in the thing produced, and by rendering this interest in exact proportion to the utility and value of the production.

Laws granting letters patent, to protect new productions, have long formed a branch of the jurisprudence of all civilized nations. Originating in England in the seventeenth century, their march has been onward with that of intelligence, until they have become incorporated into the statutes of more than sixteen countries of Europe.

But as the policy of most foreign patent laws, as well as the terms upon which the patents are issued, essentially differ from those of the United States, it may be well here to notice a few of their leading features.

England grants patents to both first inventors, and importers of new improvements not previously known within the realm. The applicant must be in the kingdom, and the *patent* may or may not, at the election of the applicant, include Ireland, Wales, Scotland, and the colonies: if for England alone, the government fees are about \$500, but if all the others places of the United Kingdom of Great Britain and Ireland be included, such fees will amount to about \$1,500. In case of no opposition, no examination as to novelty is made, prior to

the grant. Infringers are liable for all damages, expenses and costs to the patentee.

France grants patents without examination as to novelty, to either foreigners or residents, but only to first inventors, and for five, ten or fifteen years, at the option of the applicant, for a government tax of 100 francs or \$20 a year, payable annually, the first payment to be made at the time of the application. The patent will be forfeited by non-payment of the tax, or by allowing the invention to remain inactive for two years, or by the patentee importing an article of foreign manufacture, like that protected by the patent. Infringers are punished by forfeiture to the patentee, of all articles wrongfully made, together with tools and machinery used in making them, and by a fine of from 100 to 2,000 francs; and for a repetition of infringement imprisonment is added.

Belgium grant patents for five, ten and fifteen years, at the discretion of the applicant, to either importers or inventors of new improvements, for from 150 to 750 florins, or from \$65 to \$260, according to the duration and value of the patent. The patent may be forfeited by omitting for two years to put the invention into active use, or by the patentee patenting it in any other country.

Netherlands and the Dutch West Indies grant patents nearly on the same terms and principles as Belgium.

Austria grants patents without examination as to novelty, to resident inventors or the assignees of foreign inventors, for from one to five years, as may be preferred by the applicant, for a government fee, payable at the time of the application, amounting to about \$16 per annum for the term of the patent, and an additional annual tax of about four or five dollars. The invention must be put into active use within one year from the grant of the patent. Infringement is punished by injunction for the first offence, and forfeiture to the patentee of the wrongfully made article, and a fine not exceeding 100 ducats, for a repetition after injunction.

Prussia grants patents for five, six and eight years, to residents only, for either newly imported or newly invented improvements, and for the benefit of either residents or foreigners, no examination as to novelty precedes the grant. The government charge is from \$2.50 to \$5, the grant of the patent must be announced in the newspapers in six weeks, and six months is allowed to put the invention into active use. Infringers are punished for the first offence by injunction and payment of costs, and for a repetition of infringement, by forfeiture to the patentee of the wrongfully made article, and liability in an action for all damages sustained by the patentee.

Russia grants patents to any applicant, of importations, for from one to six years, and of inventions, for three, five and ten years, at a government fee of about \$25 a year for the former, and \$50 a year for the latter, no examination as to novelty is made prior to the grant.

Saxony grant patents only for new and original inventions, and only to residents, but may be for a foreign invention, the inventor nominating the resident to whom the patent shall be issued. The term of the patent is reserved to be fixed in each case by the government; the fee ranges from \$5 to \$50; and the invention must be put into active use within one year.

Bavaria grants patents, both of invention and importation, to any applicant for from two to fifteen years, at a government fee amounting to about \$10 a year; and the invention patented must go into use in two years after the grant, or the patent will be forfeited.

Wurtemberg grants patents for foreign as well as home inventions, for ten years at an annual tax, and may be for importation or invention; disuse of the article patented for two years forfeits the patent. Infringement is punished by forfeiture of the article made without right, and damages to the patentee; no examination of the novelty of the invention is made prior to the grant.

Sardinia grants patents to any applicant, and both of invention and importation; the term and tax to be fixed by the government in each particular case. Proof has to be furnished to the government every

year, under penalty of forfeiture, that the invention or discovery is kept in use.

Rome grants patents to citizens or foreigners for new inventions and for importations new in the Roman States, for from five to fifteen years, for a tax of about \$20 a year; disuse of the patented article, or non-payment of the tax, will forfeit the patent. No opposition can be made to the patent, on the ground of the want of novelty in the invention, after six months from the time of the grant. Infringement is punishable by damages to the patentee, and forfeiture of the wrongfully made article, half to the patentee, and half to the public.

Portugal grants patents to inventors, including both foreign and native, from one to fifteen years, for about \$5 a year. The thing patented must be put into use within half the time of the patent, and also publicly exhibited twice a month, on previous notice, in the government journals, or the grant will be forfeited. Infringement is made a crime, and declared to be, and is punishable as piracy.

Sweden grants patents of invention for 15 years, and of importation for 5 years. No government fees are charged. The patentee, in sixty days after the grant, must publish his specification three times, at length, in the government paper, and no opposition can be made to the patent unless made within six months after such publication; and in case opposition be made, the controversy is to be decided by arbitration, without appeal. In case of conflicting applications for patents, the first applicant in order of time has the preference. The patent may be granted to either a resident or a foreigner; but if to a foreigner, he must within one year place it in the name of a resident of the country. Proof must be furnished within two years from the grant, that the invention has been put into active use. Infringement is made penal by fine and forfeiture.

Spain grants patents both of invention and importation, for 5, 10 or 15 years, to any applicant, for about \$15 a year. Disuse of the thing patented for a year and a day, after the grant, will forfeit the patent. Among conflicting applications, the first in order of time has the preference.

All these countries provide for repealing invalid patents ; and nearly all of them disallow patents for any invention which has been in any manner published in a foreign country,—thus rendering it of great importance to inventors who intend to apply for a foreign patent, to be very cautious to not have their inventions first published in their own country.

It will be observed from this brief notice of their respective codes, that many of the countries of Europe grant patents for mere importations, that is, for anything new in the kingdom, without reference to the rights of the inventor.

Their principal object being the introduction of improvements and new manufactures into their own dominions, they seek, not so much justice to the author of the improvement, as wealth and prosperity to the country. They seem content to secure the benefit of the new article, by offering a premium for its introduction, however unjustly it may have been taken from its originator ; and what protection the inventor receives, is barely incidental. The operation of such systems is not to reward merit, but to oppress it ; they hold out an inducement to those with no merit of invention, to steal the rights of others.

To thus commission agents to prowl about the shops of other countries, and clandestinely seize new inventions as soon as produced, is nothing less than national robbery, and ought to be regarded as a disgrace to any civilized country.

Such is not the character of our system, and while our federal constitution stands in its present form, never can be. The framers of that admirable instrument were incapable of a recognition of a principle so illiberal and unjust. The noble provision it contains, and on which our patent laws are based, is in the following words :

“ Congress shall have power to promote the progress of science and useful arts by securing for limited times, to authors and inventors, the exclusive right to their respective writings and discoveries.”

This was the commencement of the patent system in the United States, and every law must conform to it. It flings the door open to inventors throughout the world ; it stands with a broad and full recognition of the rights of the author of the new production, and gives only power to the legislature to protect them. The grand features of its policy are justice to the inventor, combined with public benefit, but does not, like most foreign countries, sacrifice the former to the latter.

And although the policy of the patent system had its origin in England, and has thus extended over the most of Europe, yet like every other feature of public policy, founded on intelligence, and involving the elevation and dignity of man, the system of protecting the authors of new and useful inventions, is destined to display its most gigantic works in our own happy land, and to the glory and honor of this republic.

There is no mystery in the prediction, and no vanity prompts its utterance. The direct influence of this government, while dealing death and extinguishment to everything founded on ignorance and degrading servitude, imparts life, health, and the highest degree of progressive prosperity to every enterprise and system which takes root in intelligence, and rides upon the march of mind. As the growing products of an improved plantation extract nourishment from the wild, unwrought soil of the mountain and the glen, and yield in return, delicious and luxuriant fruits, so doth the Republic of America avail itself of all the useful fragments, even of monarchical policy, to advance and perfect its systems of enterprise for the elevation and good of man.

To any observer of the signs of the times, and the present state of the world, it must be apparent beyond all doubt, that the United States is destined to speedily become the great theatre for the future display of inventive genius and the accomplishment of its most gigantic feats.

Enlightened mind is a prerequisite to exploring thought, and exploring thought is the instrument that penetrates the mysteries of nature and brings forth her hidden treasures.

Astounding discoveries in science, and revolutionizing novelties in mechanism, have, must, and will follow in train to mental culture, and where it pervades, they will abound. But the United States of America is the acknowledged home of general intelligence ; the rich and the poor alike may partake of its blessings. It is accessible to all, diffused through all classes, and American mind is saturated with it. Intelligence is a marked characteristic of our people, a distinguishing peculiarity of our laborers; and its general diffusion is a leading and proud feature of our government. It is the aliment on which republics must feed and live ; and without it they can neither be sustained nor would be worth sustaining.

As certain as the Republic of the United States will hold its onward way through future years, so certain is it, that it will soon be the grand laboratory of the world, and command the entire frontier of the dominions of science. In short, the whole nation, by its system of general education, is one grand school of tactical training, preparing armies of adventurers for scientific explorations, and to finally seize the most outward posts of discovery, wrest them from all other nations, and bear them triumphantly further and still further on through ages to come.

The feelings of ennobling independence, engendered by the influence of our government, and possessed by every American citizen, impart self-respect, give self-reliance and confidence, and call into vigorous exercise all the noble and productive natural powers of mind.

A general diffusion of education among all the people, without distinction of rank or birth, co-operating with conscious freedom from servitude, multiplies laborers in the field of scientific research, and gives power, buoyancy, and elasticity of thought, whose flights infinity alone can bound.

By the humble mechanic of the South, birth is given to a novelty in mechanism, immortalizing to his name, because, perched upon an eminence near his father's residence, was the district school-house.

From the rude cottage of the distant West, issues an invention to astonish the refined of Atlantic cities, because the school-master had been abroad in the land of its occupants.

Now, and to our country's fame and honor be it said, intelligence stands at the wheel, commands the lathe, wields the hammer, guides the saw, and follows the plough.

But notwithstanding the available and ennobling systems of general education in the United States, so well adapted to enlighten the public mind and supply the exploring inventor with mental torches to illuminate the obscure labyrinths of his researches ; notwithstanding the tendency of the times is utilitarian, and so well calculated to release mind from the charms of phantasy and direct its efforts to things of substance ; notwithstanding that exalting sense of freedom and independence, a part of the birthright of American citizens, abiding alike with poverty and affluence, and so well adapted to engender self-respect and confidence, elicit original thought and prompt each to strive for merit ; and notwithstanding the honors awarded to labor in this country, and the high respectability and conceded merit of American operatives, so well calculated to swell their ranks with accessions of enterprise from all classes—still, to consolidate the whole, and bring all into active play, and render the influence effectual in accomplishing the great end of developing new discoveries, and enriching the country by new inventions, something more is necessary.

It is not sufficient to store mind with knowledge, cultivate its functions, strengthen its powers, and habituate it to rely on its own resources, and thus *prepare* it for action,—*motive* must be had,—a *stimulant* must be supplied.

The machinery of a manufactory may be put in perfect order—oiled up and ready for successful operation—but still it will not go ;

motive power corresponding with the resistance to be overcome, is indispensable to start and keep it in operation.

So, in like manner, to put into operation the mental faculties, and keep up the arduous and elaborate investigations necessary to pierce the mysteries of nature, and pry out great inventions, *adequate motive* must be superadded to *ability*.

But again, according to the first law of nature, that of self-protection, and especially in this country, where each is cast upon his own resources, and is the author of his own fortune, this motive or stimulant, to prove effectual in eliciting energetic action, must be of a character personal and beneficial to the party to be reached by its influence ; such as to promise the results of labor to the laborer, and enable him to anticipate with confidence the enjoyment of its fruits.

This is a principle so well established by experience, as to have become a settled fact in political economy, applicable, in general, to all the busy scenes of life.

But with what peculiar and unusual force does it apply to the encouragement of invention ? To arouse the inventive energies of a nation and nerve the mind to the absorbing, emaciating mental scrutiny requisite to surmount the difficulties and discouragements encountered by the inventor, demands motive of the strongest and most animating power. One which will call him from other pursuits, appropriate his money in expensive experiments and his time to hard study ; one which will cheer and animate him in solitary seclusion from society and substantially from his own family ; one which will sustain him amid disappointments and darkened prospects ; one which will enable him to collect and recover his energies after the prostration of his last hope, by an apparent failure in attaining his long-sought result ; one which will induce self-denial of the ordinary diversions of society, and year after year hold him steady to his purpose, until the best of his life has been exhausted in devouring abstraction.

As a motive power to accomplish all this, and put into operation all the diversified inventive energies of a country, nothing can be better adapted than judicious and well ordered Patent Laws. The benefit thereby promised, is to the inventor himself, and having the exclusive right to his production for a limited time, is proportionate to its value and in exact accordance with his merit.

The Patent Laws of the United States, like a large engine of mighty power, geared to the national mind by belts of encouragement, with Congress as the engineer, have carried and kept in operation, an amount of well-prepared intellectual machinery, of which few can form any conception, and which, alone, accounts for and has resulted in the many valuable discoveries and inventions, destined to characterize the nineteenth century, enhance the glory of American achievements, and remain as an enduring monument of the triumphant success of Republican Government.

This engine connects with and communicates its power alike to shop, factory, furnace, laboratory and the field, and is the grand practical regulator of steam power, water power, atmospheric power, muscular power, and the power of lightning.

With what care and competency then should it be managed? What an amount of responsibility devolves upon the engineer? But has it been so managed? Has Congress handled it as a matter of so great importance? The response from every man familiar with the subject, will be, No !

Whatever may have been the cause, the fact is too apparent, that the subject of the Patent Laws has not received that attention from Congress, to which its great importance entitles it. The character and contents of nearly the whole series of acts now constituting the Patent Laws of this country, and particularly the act of 1836, both as to frame-work and finish, bear evidence, of at least, hasty and inattentive legislation.

No marks of the great minds which annually assemble at our capital, no appearance of elaborate investigation, no trace of earnest effort by able men, are apparent in those statutes. But drawn, as if by one

unacquainted with what previously existed, or one under an anxiety to hastily dispatch what appeared to him to be of little consequence, the different acts are yoked together by their respective titles, illy adapted to each other, and in many respects, still less suitable to the subject-matter to which they appertain, and left to be joined and connected by the construction of courts at great expense to the public, and to the ruin of inventors. Added to this manifest want of due attention to what has been done, is the culpable neglect of doing more.

The experience of the past has indicated to every observant citizen, acquainted with this subject, the necessity of further legislation to properly adjust and regulate the respective rights of the public and inventors. And repeated petitions, prayers and supplications have gone up to Congress for a series of years, and their wisdom has been earnestly besought and relied upon, to remedy the evils; still the only response to all this, has been a few meagre enactments, inadequate to supply even the particular deficiencies for which they were intended, and leaving others still more grievous, entirely untouched. The subject has not been handled by Congress in a manner corresponding at all with its importance, nor partaken of the distinguished wisdom of that body, annually expended upon themes of less magnitude.

And it seems, that either there has been a want of sufficient acquaintance with the subject-matter of the Patent Laws, and it has appeared so abstruse and perplexing as to deter a grapple with it, or, that its entire freedom from exciting party characteristics has clothed it with a garb of passive indifference. Let there be no complaint without cause. But is not a subject-matter, annually opening new mines of wealth and power to the country, in which the public, collectively, and every individual directly or indirectly are interested, and which involves the most sacred rights to private property, and that of a peculiar and most difficult kind to regulate by law, of sufficient importance to elicit the full attention and command the best wisdom of the Legislature of an enlightened people? And has it received this?

When was the time, at which these laws were made the subject of an open and full discussion by these distinguished representatives of

States and people ? When was the time, at which this subject was analyzed and elucidated by the mastering logic and profound reasoning of distinguished senators, so often brought to bear upon questions of international law and constitutional construction ? When was the time, at which was heard a discharge upon this subject, of the great intellectual peace-makers of the United States Senate chamber ? When was the auspicious day, on which was encircled the inventor's fame, by the glowing eloquence of American statesmen in Congress assembled ? When have reported speeches and discussions on this, as on vastly less important subjects, emanated from the Capitol, and inundated the country ? When was the time, that Congress and the public were enlightened on the subject-matter of the Patent Laws, as they are wont to be on other subjects of legislation, by elaborate and lucid expositions from able members ? Never : the annals of congressional proceedings contain no traces of the kind. On the contrary, a few loose amendments, brief entries of petitions presented and referred, reports submitted, and motions made and lost, indicate about the extent to which this matter has been deemed worthy the attention of Congress.

Congress has at all times approached it, and disposed of it, with a slight consideration, due only to some limited sectional matter, and of no general interest. They have refused it attention, as if it were a law exclusively for the benefit of a particular class of individuals ; they have withheld their action, as if it were to take from the public and award to individuals ; they have treated it with a jealousy, as if it were an encroachment upon public rights, and a special favor to individuals.

Why should this be ? Is there anything in the nature of the case to palliate the grievance of such neglect ? Is the subject destitute of the elements of sound policy and unworthy of faithful and attentive legislation ? No, far from it. Laws to encourage inventions and to secure the benefit of the invention to its author for a limited time, are founded in *public policy most wise, justice most pure, and expediency most urgent*. They embrace more fully than any other branch of jurisprudence, all the ingredients of a high order of sound and wise national policy.

Let us test this, by analysis.

First—From the dawn of civilization, laws have been enacted for the protection of men in the enjoyment of their lands and herds, and other tangible property, and no nation, above the untutored savage, is regardless of this sacred right. *To secure a citizen in the use of his private property*, is of itself, without reference to further public benefit, deemed of sufficient moment to demand extensive legislation.

Second—Measures solely to promote *public interest* collectively, are esteemed of themselves sufficient to justify even years of agitation and entire political revolutions, to secure the desired legislation.

Third—*National honor* alone, is a matter of sufficient moment to move governments and armies at vast expense.

Fourth—*Encouragement to the cultivation and spread of science*, is deemed for the highest interest of Republics, and worthy the best efforts of the noblest statesmen.

But now let it be observed, that it is a peculiar characteristic of the policy of well adapted Patent Laws, to combine all of these advantages together.

The demands of justice, in protection to private rights, an increase of public wealth and convenience, maintenance and advancement of national honor, and additional fortifications of intelligence, are all united in this policy, and attainable without price or public expenditure.

Is not this sufficient then, to warrant a liberal exercise of the legislative talent of the country, and to have these laws put into the best possible order?

I am aware, that any law for the benefit only of a particular class, in consequence of the contracted sphere of its operation, is properly an object of more suspicion and less entitled to preference in elaborate consideration, than a law for general benefit, operating upon all

classes ; and I am also aware that through a misapprehension of their nature, the Patent Laws are supposed by many, to be of that character, and intended expressly to grant special favors to inventors.

This however is not only incorrect, but it is precisely the opposite of the fact.

The policy of the Patent Laws of the United States, is not to extend any extraordinary right or benefit to inventors, but on the contrary, it is to secure *justice* to the inventor and bring *benefit* to the public.

The inventor receives nothing from such laws except protection, which is the common right of all subjects of organized government.

When a man, by his own exertion and industry has devised a combination of thoughts, not known before, which, when embodied in wood or metal, are capable of producing important and valuable results, it is a secret which belongs to him and not to others, a thing which he has and the public have not. If now he disclose it to the public and receive a patent, he imparts a benefit and the public receive it ; and he in return takes nothing extraordinary by receiving the patent from the public ; it is barely extending to him, on his paying a bonus, what is extended to every other citizen without a bonus ; the use of law to protect his rights. And yet, after the public have thus speculated out of him, he is still charged with having a law for his special benefit. This is truly ungrateful. He asks no special favor, but barely justice ; and it is the policy of the Patent Law to award him nothing but justice, and through that, to secure a great public benefit.

Is it possible then for Congress to be better engaged than in taxing their time and attention, and exercising their best talents in improving laws so just and so creditable to the nation ? Days and weeks are often spent among the members, in controverting points originating in mere pride of opinion, and the discussion of mere temporary matters of no lasting importance. How much more is it worthy the representatives of an enlightened and distinguished people, to employ

their energies and display their ability on a policy originating in intelligence, founded on science, progressive in importance, and destined to carry its blessings to every civilized land, and through all ages to come ?

But let us now approach the subject with some more particularity, with a view of determining to what extent this policy of the Patent Laws has been carried out by Congress.

Acting upon the power given by the Constitution, they have undertaken to provide that inventors, through the instrumentality of patents, shall have the exclusive right to their inventions for 14 years. Pursuant to this, the first thing requisite after the inventor has completed his invention, is to know whether he can receive a patent. If he can, it is important to have it without delay ; and if he can not, it is equally important for him to know it ; and in either case, it is of equal importance to public interest to have the matter speedily disposed of.

But how have Congress met this first demand of the case ? It seems to me that they have met it in the best possible manner to defeat the very object of the system. For a number of years the amount of business in the patent office has so far exceeded the provision made to dispatch it, that the inventor, on applying for a patent, has been compelled to wait for 5, 6, 8 and 9 months before being able to procure an answer.

After appropriating years, and by expending all the means he had in completing the invention, he must then wait, with no means of support for himself or family, and feed upon suspense for several months, because government is short a hand or two in the patent office. Is it the encouragement to inventors contemplated by the Constitution, to keep his property unprotected by law for several months, because the government have work for a few hands more than they have provided ? Shall he be deprived, on such paltry excuse, of the common protection of law to his property, and then be told that this is his encouragement ?

Nothing less than ample provision to issue to an inventor a patent, as soon as he can show himself entitled thereto, is worthy of the intelligence of the age. Why should he be required to crouch, in corroding suspense, beneath the droppings of the patent office for months, before being allowed to assert a legal title to his rights?

Standing on the porch of the patent office, as far off you may see a meagre, care-worn man, wending his way towards you. Unobservant of surrounding objects, and with eagerness and encouraged hope depicted upon his countenance, he advances with hasty step and enthusiastic air, until he passes the threshold of the building, he comes with all the earnestness and anxiety of a messenger with momentous tidings from a hostile camp. Who is he, where from, what has happened? Is he the bearer of important dispatches? Has he brought intelligence of some mighty conquest? Yes, even so. He comes from our frontier army, stationed upon the boundary of human progress; he has been an old veteran there, and hastens to announce a victory won. He has at length forced nature's ramparts, and made a rich conquest of her concealed treasures, and now brings with him the booty to enrich and embellish his country. Elated with hope, he seeks the triumphant arch of the patent office, and anticipates the warm reception and gratitude of his countrymen; reaching it, and speeding his way to the commissioner, he presents his credentials, and impatiently waits a reply. But what now? Why, with cool dignity he is told he may as well go home again—that the government has no time to attend to him then—that his papers will be filed, and in the course of six months or a year, taken up and looked at. Now, in the name of common sense, is this encouragement? Is this calculated to arouse the attention and nerve the energies of others to go and do likewise? In what school of philosophy must legislators have been trained, to have brought forth such means to impart encouragement to inventors? Through what mental optics have they been able to discover, that *disappointment* is *encouragement*, that injustice and ingratitude multiplies benefactors, or, that withholding the protection of law to a particular kind of property, is an inducement to others to invest their means, time and labor, in such property?

No transcendentalism can compete with so great absurdity.

Every application for a patent should be taken up for examination as soon as made. Justice requires it, and the true policy of the system requires it. Frequently the inventor, on the completion of his invention, has nothing else left. Years of toil and his last means are all invested in it. While others have been engaged in accumulating houses and lands, to be held by them for life, and then descend to their children, he has been laboring to produce an invention, to be enjoyed by himself for the short term of 14 years, and then to pass to the public for general good. He has no other means of support, and must even seek pecuniary assistance from others to put the invention into operation ; but he must first be able to show his legal title, and he can get no assistance until he receives his patent. Had he spent his time in raising wheat and bullocks to feed upon, legal title would have attached to them as soon as produced ; but, because he has labored in a way for greater public benefit, he must stand in abeyance, and suffer the ruinous consequences of months of unnecessary delay.

But let us not leave this point with only lamentation and complaint ; a physician's sighs and tears over the suffering of his patient, will neither remove nor mitigate the disease. A remedy is demanded, and what shall it be ?

The immediate cause of this delay is the increase of business in the patent office, and this is only the result of the successful operation of the patent system.

A remedy is not difficult to find ; Congress has been chasing the difficulty with the proper remedy in kind, for several years, but have strangely managed to keep about the same distance behind it. When two additional Examiners have been required, they have provided for one, and when three have been required, they have provided for two, thus keeping the supply just so far in the rear of the advancing demand, as to perpetuate the grievance. The cause of the delay being progressive, the remedy, to prove effectual, must be adapted to its prospective demands.

To properly provide for this, Congress must so inform itself of the duties and details of the patent office as to fully understand and appreciate them.

The whole system, both in theory and practical operation, is progressive, and principles applicable to it at one time, may not apply to it at another. What it was, and what was necessary to govern it, is not a sufficient criterion to determine what it is, and what is now necessary to regulate it. As well might an attempt be made to govern a locomotive by principles applicable to an ox-cart, or the steamer by the philosophy of the Venetian galley.

The duties of the Examiners are arduous and difficult, requiring great integrity, competency, experience, and elaborate investigations. Their labor constitutes the great work of the office, and the manner of its performance will determine whether the present system will be a curse or a blessing. Their reports are and must be virtual decisions, and the country must rely upon them for results. The papers may pass through the hands of the Commissioner, but the matters to be determined can never pass through his mind; the extent of the business and the many nice and difficult questions to be determined, are entirely beyond the capacity of one mind to encompass. A small error, wilful or inadvertent, on the part of an Examiner, may drive away the meritorious inventor with no reward for his labor but injustice, disappointment and sadness; while, on the other hand, it may crush and trample upon the vested rights of others.

The examiners' time should not be overtaxed. The nature of their duties are inconsistent with such a course. Full opportunity should be afforded them to confer with applicants, hear arguments and explanations, and in difficult cases to consult at length with each other, and not as a matter of courtesy, but as a part of their legitimate business.

As it now is, aside from intolerable delay, the examining force of the patent office is so pressed with accumulated business as to leave no proper time for such purposes, and if an inventor by dint of effort

gains an interview at all, it must necessarily be so confused and hurried as to be of little practical service.

The extent and importance of the present business of the patent office demands an entirely new and different organization of the examiners' department. The duties which they perform are susceptible of being divided into three classes :

1st. Examinations as to the form of the specification, drawings, model, and other papers of the applicant.

2d. Searches and examinations of records, scientific publications, models and other sources, for evidence on the subject of the application. And

3d. Digesting, considering and disposing of the evidence after found, including consultations, explanations, hearing parties, examination of evidence taken in interference cases, and other things of like nature.

The labor of the first two of these divisions is of a nature which requires no interruption, and of consequence, when mixed up with that of the third division, the whole becomes confused and hurried, and much time is lost.

To obviate all difficulty and secure order and dispatch, there should be three sets of examiners: principal examiners, to take charge of the third division; vice-examiners, to take charge of the second division; and assistant examiners, to take charge of the first division.

And, as far as practicable, the office of the examiners should be made permanent, and they should succeed each other in rotation, from assistant to principal.

Such an arrangement would secure qualifications adapted to duty, and promote general order and dispatch of business. It would relieve the first and second divisions from the confusion and interruption of the matters belonging to the third, and enable the principals to at-

tend to things which are now necessarily neglected, to the great grievance of applicants.

I have taken the trouble to ascertain, that four additional men, at an expense of about four or five thousand dollars a year, would be sufficient to carry out such an arrangement, obviate delay, and meet present and prospective demands.

And why should not this be done? Is the expense an objection? If so, it is well to know how this objection stands.

Since the patent law went into operation, which was in 1790, ~~three~~ years after the signing of the Constitution, the money paid into the patent office, chiefly by inventors, and passed to the treasury of the United States, amounts to \$758,505.70. Of this sum, \$434,036.87 has been expended in conducting the business of the patent office, including the amounts paid for agricultural statistics; leaving a balance of \$324,468.83. Of this balance, Congress spent \$108,000 in constructing a building, nominally for a patent office, but practically for a variety of other purposes. The remainder of this balance, being \$216,468.83, on the 1st day of January, 1849, remained in the treasury of the United States, and which Congress is now engaged in spending in putting up buildings for the general use of the Home Department.

Now tell me, if you can, why inventors have been ridden with a special tax for half a century, to accumulate funds to collect agricultural statistics and erect buildings for the use of the country at large. Why not tax every man, in like manner, for the use of law to protect his property and his rights? What high offence has the inventor been guilty of, that he should be singled out and made a victim of this special burden, to accumulate funds to be applied to the general purposes of government? Not one dollar of this fund should be appropriated to any other use until every necessary accommodation be provided for issuing patents.

But again, if there were no other way of meeting the expenses, inventors would gladly, on condition of having their applications exa-

mined as soon as made, with the other accommodations suggested, pay still more than they now do, and sufficient to meet all additional expense.

And finally, if the expense of proper provision for the patent bureau could not be had from any other source, it is a matter of sufficient public importance and general benefit to warrant its payment out of the general funds of the government. But this is not at all necessary, as proper attention to the subject would enable Congress to see wherein justice as well as expediency requires, that the fees for certain services in the patent office should be raised.

For instance, every re-issue of a patent, to induce the applicant to get his claim right in the first instance, if nothing more, should be charged, instead of less, more than an original application; and every improvement applied for on an invention already patented, as it requires the same labor, should be charged the same fee as an original application.

Another evil requiring the immediate attention of Congress, is the present system of re-issuing letters patent.

The act of 1836, provides that in case of mistakes in the specification of letters patent, such patent at any time during the term of fourteen years, may be surrendered and a new patent issued *for the same invention*, called a re-issue. The object, intended to be attained by this provision, is undoubtedly a laudable one, but, from its loose and indefinite wording, its practical operation is most unjust and oppressive, tending to absolute legalized robbery, both upon individuals and the public. Under the construction given to this provision, the practice of the patent office in granting re-issues, has been, not to limit the extent of the claim of the new patent to the invention appearing in the original patent, or to be inferred from the specification annexed thereto, but to enlarge it on ex-parte evidence to any additional extent.

Superadd to this practice, the fact that the new patent so issued, is to take effect, as to causes of action subsequently accruing, from the date of the original patent, and is to be deemed evidence of the exis-

tence of the invention as far back as the date of such original, and you have a combination of things, the joint operation of which is truly alarming, opening a door for foul fraud and deception, and resulting in the most glaring injustice and the most intolerable outrage upon the rights of men and community, ever passively endured.

By it a patentee is enabled, by the use of an ex-parte affidavit of any vile vagabond, to gather up in some old patent, for a useless skeleton of an invention, and appropriate to himself all the inventions upon the subject-matter to which it belongs, which others have produced for the last thirteen or fourteen years, and this, too, with no opportunity on their part to be heard in opposition. By it, and the use of the same means, he is enabled to extend the bounds of his old patent over all the new territory discovered by others subsequently to the date of his original patent. By it, and the use of like means, he is enabled to expand his old patent and swallow up, not only what others have since invented and put into use, but even what they have patented and sold long before he ever conceived or dreamed of the existence of such a thing. By it, and the use of like means, he can manufacture legal evidence to the effect, that he made a discovery or an invention years before it was ever known or made at all. By it, and the use of like means, he can wrest, from other citizens, inventions which they have made, which belong to them as first inventors, and even, which they have patented and long had in public use.

Thus it is, that old relics of patents, by this system of re-issues, are converted into nets to surround and gather up for the benefit of their owners, the rich fruits of others' skill, genius and labor.

Thus it is, that old patents, for inventions of no use or value, and even not new, are set as traps to ensnare meritorious inventors and harrass the public ; and thus it is, that old patents, for inventions long ago abandoned by the patentee, as containing no novelty, are resuscitated by fraud and corruption, and sprung upon the community in the form of re-issues, to take from citizens their property and vested rights. This is a growing evil, so great and important, that its removal is worthy of the best attention of Congress, and its continuance is a foul stain upon the character of our national intelligence.

To correct it, the law should provide, 1st, that no patentee, on surrendering his old patent and having it re-issued, should be allowed to incorporate any invention into the claim of such re-issue, except such as *clearly* appears in some form in the specification of his original patent. 2d. That no re-issue letters patent should be allowed, after the expiration of one year from the time of issuing such patent. The only object of a re-issue should be to correct mistakes, and if the matter be so neglected as not to find the mistake in one year, the consequences better fall upon those guilty of the neglect, than to be rendered the means of destruction to the rights of those who have no connection with, or power over it. Or, 3d. As a substitute for the remedies suggested, no patent should be re-issued, except on notice to such persons as may have filed a request therefor in the patent office, in the nature of a caveat, and an opportunity afforded to hear objections to such re-issue.

Another feature of the law requiring correction, is that allowing a party to apply for a patent on some old experiment which he may have made and abandoned for years, and thereby to interfere with other patents already out for the same thing. This practice is liable to the same objection as that of granting re-issues, as now conducted, and the same arguments apply to both.

This should be so altered that no patent should be granted unless applied for within two years after the completion of the invention, provided a patent had been issued to any other original inventor of the same thing prior to such application.

Another deficiency in the present law, is the want of a provision to repeal invalid patents. As the law now is, no patent can be repealed; however invalid it may be, and by whatever fraudulent means it may have been obtained, it must nevertheless stand for the fourteen years as a terror and a nuisance to the public for the want of a provision of appeal. This is too absurd to require argument.

And the 17th section of the act of 1839, under the construction unavoidably put upon it by the Supreme Court of the United States, in consequence of its loose wording, entirely misses its mark, and

like a gun with no breech-pin, discharges itself in the wrong direction, endangering the sportsman more than the game.

It in effect, amounts to the absurdity of rendering the person, not the inventor, but who shall have purchased or made a machine on the plan of the invention, before application for the patent, a joint owner with the patentee.

The provision, requiring interfering applicants to take testimony, as to their respective rights, and leaving them with no power to compel the attendance of witnesses, is equally preposterous.

I might detain you by pointing out many other defects in the patent laws, as they now stand, but time admonishes me to come to a close, which I shall do with an expression of a hope, that the members of this great Institution will appreciate the importance of good patent laws, to promote the noble objects for which they are associated, and will give their influence in favor of their improvement.

ADDRESS

On the Manufactures of the Southern States, delivered at Castle Garden, Oct. 1849.

BY JAMES M. CRANE ESQ.

MR. PRESIDENT AND LADIES AND GENTLEMEN :—At the request of those who have in charge this thriving and useful institution, I have consented to appear here, this evening. I think I deceive not myself or others, either, when I say I take a strong and decided interest in all that increases the wealth, independence and true glory of the country. It is our country, our whole country—however bounded, still our country—to be nourished, protected and defended by all our hearts and minds. There is no land like unto it. It has reached nothing like its zenith, yet it is a young giant of more power and strength than any nation on the globe. .

The progress which it has made from the time of its discovery, has no parallel in history. For nearly three hundred years it had to struggle against a barbarous population at home—and an almost semi-barbarous policy of the mother country. Our fathers in 1774, '5 and '6, believing that so goodly a land as this ought not to be embarrassed by oppressive legislation, flew to arms, and threw off all allegiance to the mother land. All history shows they had just cause, and time and investigation have sanctioned their acts. "Appealing to Divine Providence for the rectitude of their intentions," they pledged to each other "their lives, their fortunes, and their sacred honors," to accomplish their deliverance. Their labors were crowned with success, and from that day to this, in which our eyes at this wonderful exhibition behold so much of the skill, ingenuity, and enterprise of our people. Our country has advanced with a progress and power unexampled in the history of the world.

Among the chief causes which lead to that great event in our history, the revolution, was the restriction imposed, upon our commerce and manufactures, by the British Government. It is her peculiar policy yet with her colonies, as well as with our own and other nations. It might not be amiss to allude to some few of these oppressive acts. That the colonies should not be permitted to manufacture even a *hob-nail*, was not the mere idle remark of an English statesman, for as early as 1699, Parliament declared that "no wool, yarn, or woollen manufactures of their American plantations, should be shipped thence, or even ladened, in order to be transported to *any place whatever*."

In 1719, Parliament resolved "that the creating manufactures in the colonies, tended to lessen their dependence on Great Britain." In 1737, Parliament directed the Board of Trade to inquire and report "with respect to the laws made, manufactures set up, or trade carried on detrimental to the trade, navigation, or manufactures of Great Britain." The next year the board made their report. In it they say—"New England, New York, Connecticut, Rhode Island, Pennsylvania, and in the county of Somerset, in Maryland, they had fallen into the manufacture of woollen and linen cloth." Also "brown Holland, for women's wear, which lessen the *importation of calicoes*." Also "some linen and cotton for ordinary shirtings and shifts for the French and Spaniards."

They had also "erected six forges (one of which was in South Carolina,) and nineteen furnaces;"—also "New-York and New-Jersey manufactured great quantities of hats, of which the company of hatters in London have complained." In 1732, an act passed Parliament "to prevent the exportation of hats from the Colonies." By this act no master could have more than two apprentices and who should serve seven years. No negro could be taught a trade. The lading a horse or cart for exporting hats or manufactured articles was a heavy penalty. In 1750, Parliament prohibited the erection or continuance of any mill or other engine for rolling or slitting iron, or any plating forge, or any furnace for steel, under a penalty of two hundred pounds, and moreover declared them a public nuisance, which the Governors of all the Colonies were required to abate, within thirty days, under a penalty

of five hundred pounds. Subsequently, Parliament prohibited the exportation, to this country, of tools to make iron. These and similar acts of oppression, that might be named, aroused the spirit of liberty, which eventually burst forth in the Revolution, was complained of in the Declaration of Independence, partially provided for in the Confederation, and finally secured against in the Constitution ; and these wonderful exhibitions before us are the fruits of that Constitution.

Great Britain made an earnest attempt to have in the treaty of 1783, by which she acknowledged our final separation and independence, a clause inserted, binding us *not* to engage in manufactures. In 1791, she attempted, through her Board of Trade, to have the United States bound by treaty not to raise the tariff on her manufactured goods.

At the close of the second war, in the year 1815, Lord Brougham declared in the House of Commons, "that it was well worth while to incur a loss upon the first exportation, in order by the glut to stifle in the cradle these rising manufactures in the United States, which the war had forced into existence. From and after the war up to 1828, sufficient protection was given to manufacturing to enable us to prosper very greatly. On account of this result, George Canning, when he became Prime Minister, declared "that he would make the people of America reduce their tariff or dissolve their Union." A correspondence was commenced, with leading men in this country, and which laid the foundation of nullification in South Carolina. Nullification led to the compromise, and the compromise to the almost total overthrow of our manufactures. After which we find the Edinburgh Review thus discoursing about us :—

"In the four quarters of the globe, who reads an American book ? or goes to an American play ? or looks at an American picture or statue ? What does the world yet owe to American physicians and surgeons ? What new substances have their chemists discovered, or what old ones have they analyzed ? What new constellations have been discovered by the telescopes of Americans ? What have they done in mathematics ? Who drinks out of American glasses ? or eats from American plates ? Or wears American coats or gowns ? or sleeps in American blankets ? Who ?"

We may gather the policy of England towards her manufactures from the following notice which was issued from the Lord Chamberlain's office in 1842: "*Her Majesty's State Ball.*—All persons invited to the ball at Buckingham Place, on the 12th of May, *are expected to appear in dresses of British manufactures.* Ladies not to wear plumes or trains, gentlemen to appear in costumes, uniform, or full court dress."

I am no eulogist of England as some are; no admirer of that sickly philanthropy which traverses the world to discover objects for her sympathy whilst thousands are suffering at home for its support!—no advocate for that protection which exhausts itself in preserving wealth to the wealthy, and entailing poverty and misery on the poor and wretched. But look at England as she is, with all her faults—there is in her history and policy much to admire and much to imitate. With a small territory scarcely as large as that of some of our states—with no peculiarity or variety of soil or climate, producing an insufficient supply of the necessities and but few of the luxuries of life, and but a portion of the raw materials that sustains her arts—yet she promptly meets the interest on her immense national debt; disburses for her annual expenses upwards of fifty millions of pounds sterling—sustains an army of a hundred thousand men—a navy over five hundred ships of war—the most extensive commercial marine in the world; gives laws to a hundred and sixty millions of subjects, and rules over one sixth of the globe. It has been well said of her, that the "Sun never sets upon her territories"—that her "military posts are dotted round the entire globe; and their morning drum-beat, following the course of the sun, sends forth a continuous strain of the martial airs of England."

Yet in comparison with her shuttle and loom, her machinery and steam engine—all her martial array are but the "pride, pomp, and circumstance of power." Those may overawe her own subjects—overthrow the hordes of Asia, or battle against some prouder foe—but these serve the products of her power throughout the inhabitable world and paralyze the energies of mighty nations; and, if England were blotted out of existence to-morrow, the historian could a thousand years hence, write from the medals and devices of her manu-

factures a more accurate account of her power and greatness, than has ever been deciphered of the past from the imperishable monuments of genius ; for even these tell not a tale of civilization so impressive, as the simple winding-sheet torn from the skeleton that it has enshrouded for hundreds of years.

The secret of England's power and greatness is in the protection of her own industry. From the days of her Edwards and her Henrys, when she launched her first battle ship and imported sailors to man it—when, to foster her own manufactures, she excluded those of other countries, and even made the exportation of raw materials felony, and required the dead to be buried in woollen ; unto the present time, she has pursued the same policy of protection. It is inscribed upon the sails of her ships ; stamped upon the products of her arts, and emblazoned upon every monument of her genius, enterprise and power. Through all change of time, of sovereigns, of ministers, and of parties—beneath this broad shield, England has stood armed against the world. With her unchangeable position of buying nothing she could produce, she has successfully competed with all competition.

Within the last half century, our country has sprang forth her rival. In this contest she possesses peculiar advantages—a broad expanse of territory in the heart of a new continent, laved by an ocean on either side stretching out like a beautiful carpet, through every variety of clime, and intersected with magnificent mountains, valleys, rivers and lakes, with every peculiarity of soil, producing all the necessities and most of the luxuries of life—sparkling all over with the richest minerals, abounding in the elements of national wealth, with immense facilities of internal and external communication, and teeming with a population literally panting for the conflict. Let us sustain them, that we may give happiness to the wretched, permanency to our wealthy, character to our country—replenish the national treasury, establish confidence, put in motion millions of machinery, give employment to millions of citizens, cheer the husbandman with the certainty of a market, whiten the ocean with canvass, speed the canal-boat and car, and electrify this entire nation with new life and energetic action.

But it was more particularly my purpose in addressing you, to give some account of the progress of industry in the south. Although the people of that genial and beautiful portion of this union are not so noted for their thrift and industry in the arts as this division of the country, still they are progressing at this time very steadily and successfully.

The State of Delaware has a larger capital invested in, and a greater number of manufactures for the territory and population, than any State in the Union out of New England. In New Castle county, especially on the Brandywine, cotton, woollen, and other manufactures, are very numerous. The most of them too, are of a very large class. But little is done in either Kent or Sussex, but agriculture is decidedly improving.

Maryland is pushing ahead with rapid strides in canals, railroads, and manufactures. In these three great interests, with that of mining, she has perhaps a capital of from forty-five to fifty millions of dollars. Her great railroad to the Ohio runs through a vastly productive coal and iron region. In the county of Allegany her coal and iron interest is of great magnitude. A numerous population has gathered here on this account. Several large rolling-mills and furnaces have been erected. The coal and iron trade alone from this county must swell the commerce and profits of the Chesapeake and Ohio canal to a very extraordinary amount, when that great improvement shall be completed to Cumberland; it is to be finished in all next year. Factories, mills and furnaces are growing up in all the old and new towns and settlements along the line of this railroad, both in Virginia and Maryland. The coal mining interest is one of great productiveness and magnitude both to this road and the State.

One of the best conducted manufacturing towns in this country, is Laurel, half-way between Washington and Baltimore. The people for twenty miles around have been literally transformed. It is a very flourishing valley. There is a very large manufacturing town, on the plan of Lowell, commenced at a place called Weaverton, near Harper's Ferry, on the banks of the Potomac. Several large mills, factories, hotels, churches and stores have already been erected. Quite a con-

siderable manufacturing settlement is established near Cumberland. Rolling-mills, factories, forges, furnaces, with other branches of industry are springing into existence over the whole State. Agriculture in Maryland within the last few years has undergone a decided improvement.

If Virginia, my own State, had commenced the same systems of improvement thirty years ago, she has now in progress and in contemplation, she would now have a population of over three millions of souls. Richmond, Petersburg and Portsmouth in the east, and Wheeling, Wettsburgh, and Charleston in the west, are very considerable manufacturing cities and towns. I find that Richmond, Lynchbury and Alexandria are represented in this fair, in cotton and wollen goods, and also tobacco. She has about sixty-five millions of dollars invested in railroads, canals, with other modes of land and water transportation and in mining and manufactures. When her present railroads now in progress shall be completed, with those already existing, she will have a chain of railway of about sixteen hundred miles, and all within her own territory, giving her the greatest length of railroad of any State in the Union. The Lynchburg and Tennessee railroad passes over a region of country the most remarkable on the face of the earth. The richness of its soil and the immensity of its minerals are amazing to behold. The State Geologist in canvassing this part of Virginia pronounced the State an "Empire within itself." Gypsum, iron, lead, ziac, copper, bituminous, semi-bituminous, carmel, and anthracite coal exists to an extent almost unlimited, and with this enumeration, the story of its immense treasures hardly begins. The completion of this road in connection with the Tennessee link, will establish an uninterrupted railway from the Chesapeake to the Mississippi at Memphis. The aggregate length of her canals are now next to New-York.

Another road to the west is now fairly under way. It is completed or under contract one hundred and forty miles west of Richmond. The road is to strike the Ohio three hundred and fifty miles below the Pennsylvania road, and two hundred and fifty miles below the Baltimore and Ohio railroad. This great central road passes by her numerous mineral springs, and over a rich mineral and agricultural region. There is a strong probability now that Virginia will reach the Ohio by rail-

road before any State in the Union. Ship building, mining and manufacturing are decidedly on the increase. Agriculture in this State is rapidly improving.

The flour produced from the Virginia wheat is the only flour which will bear transportation on the Pacific. The wool grown in Virginia brings the highest price in Lowell, Lawrence, and all other manufacturing markets, of any State in the Union. By the census of 1840, the sheep of Virginia produced more wool per head, than any other State. Tobacco manufactured from the Virginia plant is the only tobacco which will not deteriorate from age. These facts I desire to publish and make known. So well satisfied are the wool growers becoming of the truth that Virginia soil and climate are the best adapted for sheep, that one of the largest wool growers of New-York, and the largest from Pennsylvania have migrated to Virginia with their flocks. I understand a colony of wool growers are now on their way from this state to Virginia. The state is losing its black population, but emigration from Europe, New England, New York, New Jersey and Pennsylvania are taking their places. Virginia at this time presents a fine field for young and enterprising persons. The system of common schools has been adopted in about one-third of the State with success.

North Carolina until within a few years back seemed asleep—but she is not so now. Recently she has started with decided vigor. She has now a capital of twenty-four millions of dollars invested in railroads, canals, with other modes of land and water transportation, and in mining and manufactures. Her railroads when completed, with those now in operation, will form a chain of over six hundred miles in extent. The central railroad from Raleigh to Charlotte will bring the rich minerals and agricultural products of the western part of the State into market. Western North Carolina is a rich and picturesque country. Her mineral wealth and water power are immense.

Fayetteville on the Cape Fear river, is a flourishing manufacturing town. There are more persons engaged in, and directly or indirectly depending on, manufacturing for a support in this town than any other in the South. Wilmington, the chief city of this State, is quite a

considerable commercial and manufacturing city. There are also other towns and settlements in this state where manufacturing establishments are erected. North Carolina is capable from her position and resources of becoming, as she will, a very flourishing manufacturing state. She has a most excellent system of common schools. Ship building with the manufacture of naval stores are important interests now in the state. Agriculture is slowly, but surely advancing.

Although South Carolina has been for the last twenty years battling with the tariff, she has made within the last three or four quite an important change in her domestic policy. She has now between twelve and fifteen millions of dollars invested in railroads and other modes of land and water communication, with manufactures. In the upper part of the state there are several iron mills, foundries, nail and cotton factories. Her cut nails, like her cotton goods, are sold in this market. This is the case also with the Virginia and other Southern nails and cotton goods. It is a remarkable fact that cotton yarns made in Southern factories sell from one to three cents per pound at the North, over the yarns spun in Northern factories. The coach lace manufacturers never use any other cotton yarns, as they are said to be a much better article.

There is a flourishing manufacturing town on the plan of Lowell, near Aiken, in the upper part of the State, called Grannettville. No better conducted establishment exists in this country. I find some of the goods of that place on exhibition here. Charleston too has her cotton factories and iron establishments. Indeed every thing bids fair to make this one of the most decided tariff and manufacturing States in the Union. Time and improvement is doing the work.

Florida, inconsiderable as she is in population as yet, is progressing slowly, but surely. She has a large school fund, and a most admirable system of common schools. The State has about six millions of dollars invested in railroads, with other modes of water and land transportation, and manufactures. Several cotton factories and iron foundries have been established with great success. Her ship timber and resources for naval stores are almost unlimited. Several railroad charters were granted at the last session of the Legislature—one, the

Atlantic Gulf Railroad from St. Mary's, Georgia, to Cedar Keys, Florida, with the view of making a direct line, by the shortest route, between the Crescent City of the South and the Empire City of the North. There are also other railroads completed and in progress, which are destined to aid greatly in developing the resources and wealth of this young State.

Georgia is called the New England of the South. She has built more railroads, with her own money, than any State in the Union, and she has a larger chain of them than any other, save Massachusetts, the greatest State for the population in the known world. Along the line of her Great Western Railroad, now nearly completed from Savannah to Chattanooga, near the Tennessee line, thriving towns have suddenly grown up, where a few years since hardly an acre was occupied by civilized man. The capital invested in her railroads, canals, with other modes of land and water transportation, mining and manufactures, is not far from fifty-five millions of dollars. She is at this time advancing more rapid in manufactures, and especially cotton manufactures, than any State in the South or North.

There is hardly a county in the State where there is not a factory. Columbus is destined to be a large manufacturing city. The city has already made great progress, and her water power and other facilities are capable of increasing this interest to almost any extent. Her system of railroads, like those of Massachusetts, are penetrating into every portion of the Commonwealth. Agriculture is also in a healthy and prosperous condition. Emigration is rapidly tending to this enterprising State.

Alabama, though comparatively a young State, has more manufactures than any other State in the Union of her age. Prattville is a flourishing manufacturing town. So is also Tuscaloosa, the former capital of Alabama. She has a capital of at least twenty millions of dollars invested in railroads, canals, and other means of transportation, with mining and manufactures. The Mobile and Ohio railroad, an enterprise of vast magnitude, is now under construction. When this great work is completed, Mobile must become a flourishing commercial and manufacturing city. There are other roads of

less consequence and extent. Alabama partakes in a great degree of the enterprise of Georgia.

Texas is rather too young to do much as yet in either railroads or manufactures. Yet she has her cotton factory and iron foundry. I find her represented here in machinery. Charters have been given for making navigable a number of her rivers. Railroad charters have been also granted with tolerable good prospect of success. Coal and iron are found in great abundance in this State. Texas must become eventually a manufacturing as well as an agricultural State.

Louisiana is a large sugar manufacturing State. The capital in sugar, cotton factories, and iron foundries, with her railroads, and other means of travel and transportation, is at least fifty millions of dollars. The position of this State is such as to make her a flourishing sugar and cotton manufacturing State.

Although the last census gave Mississippi fifty-three cotton factories, the whole only producing about twenty thousand dollars worth, yet she is now turning her attention in good earnest to this department of industry. Her planters are taking up the subject. A manufacturing town, like Lowell, has been commenced under good auspices. In twenty years from this, Mississippi will be a flourishing manufacturing State. About twenty millions of dollars are now invested in rail and other roads and manufactures.

Missouri is destined to be one of the largest cotton, hemp, tobacco, and lead manufacturing states in the West and South-West. Her mineral wealth is inexhaustible. A very considerable number of iron mills, foundries, and hemp factories are already in existence. As yet but little is done in cotton—but a good time is coming. About twelve millions of dollars is invested in internal improvements, mining and manufactures.

Arkansas has considerable mineral wealth, and will in some future day become a thriving manufacturing State. As yet manufactures “are few and far between.”

Tennessee is naturally a great State. In Middle and East Tennessee a very considerable amount of cotton and iron are manufactured. On the Cumberland river there are a number of rolling mills, nail and cotton factories, and iron foundries. East Tennessee, like South-Western Virginia, is unlimited in her mineral wealth. When her great chain of railroads, connecting her with Virginia and Georgia, shall be completed, this part of her territory must fill up with an energetic and thrifty population. Already many European and American citizens have been established here. Memphis in West Tennessee, is becoming quite a manufacturing city, and is now one of the most flourishing towns in the state. Tennessee has about thirty millions of dollars invested in mining, manufactures, railroads, and other improvements. The time must come, and that at no distant day, when she will be a mighty and powerful State. Agriculture and all other branches of industry are improving.

Kentucky is quite a manufacturing State. Her principal business, however, is confined to iron, flax and hemp. Several cotton mills have been erected, and a good many woollen factories. Louisville, Lexington, Covington and Marysville are doing a good deal of manufacturing. The capital invested in railroads, canals, and other means of water and land transportation, with mining and manufactures, is about twenty-five millions of dollars. She has an excellent system of common schools.

Time will not permit me to be more general in particularizing the industrial pursuits of the states above enumerated. The half is not told for the want of it. I hazard nothing in saying that within the next twenty years the bulk of the cotton manufacturing interests will be confined to the South. All the signs of the times are tending to this end, and he who can estimate the magnitude of that interest, now regulating the commerce and exchanges between this country and Europe, and between the North and South, may also estimate what a destiny awaits these States. They constitute the great hemp, tobacco, sugar and cotton producing States—combining these interests with the wonderful mineral wealth and water power they possess; their future march, though slow to wealth and power must be tremendous.

I know I have given you, ladies and gentlemen, a glowing account of the resources of the South, but I have said nothing which time and investigation will not corroborate. What I have said, however, has been spoken in no spirit of unkindness to their great sisters of the North and West. Far be it from me to alienate them. I know no North, no South, no East, no West. The great Washington proclaimed to the ears of our ancestors—"united we stand, divided we fall." It is still true. We are freedom's great hope and the world's deliverance.

Now when the night and the tempest have closed around Europe, and the brave have sunk down with their country's liberties, let us look up to our Union, and the Great Charter which creates it as the bulwark of our strength and independence. Let us nourish our country—develope her strength—enrich and beautify her borders. Let us pull together. Let the young men remember what their fathers have secured, through perils by day and perils by night, to transmit to them as the best legacy they could confer, as the surest pledge of their affection, that they might transmit it unimpaired to their successors. So feeling—so acting, we shall be ready to exclaim with the dying Adams—"independence now and independence forever."

ADDRESS

Of the Hon. James Tallmadge, LL. D., at the close of the 22nd Annual Fair.

On the evening of Thursday, October 25th, the twenty-second fair of the American Institute came to a close. The reading of the Award of Premiums having occupied the majority of the afternoon and a portion of the evening of that day, the CLOSING ADDRESS was delivered at 7½ P. M.

The President of the Institute, Gen. JAMES TALLMADGE, being at that hour introduced upon the stage, the vast assemblage in the spacious area of Castle Garden was called to order—and the speaker proceeded extemporaneously. The following is a summary of his remarks :

FRIENDS AND FELLOW CITIZENS :—We are glad to meet you here this night, at this exhibition of the productions of Agriculture, and the works of American mechanics and artisans. You have listened to the award of premiums usually bestowed at the conclusion of these our annual fairs—and have witnessed the host of treasurers spread out before you. We now invite your attention to the concluding ceremonies of this occasion.

At this twenty-second anniversary of the American Institute, we wish at the outset of any remarks, to return our thanks to the citizens of New-York and of this nation, who have during the last twenty-two years nobly sustained all our efforts to encourage agriculture, commerce, manufactures and the arts—of the extent and the beauty of which you have this night before you so brilliant and abundant examples.

Let us briefly review the present condition of our country. Cast your eyes abroad, to the other nations of the earth. Where do we find, in them, causes or events from which we may learn wisdom, or draw useful examples? Great Britain has been about fifteen centuries, and France perhaps ten, arriving at their present condition; while young AMERICA—not yet seventy years of age—has taken *her* position in the front rank of nations; and is holding competition with those of the Old World most advanced in the civilized arts. Can it be doubted, that, while our agriculture yields her annual product of seven hundred million bushels of breadstuffs; and with the genius for industry and invention peculiar to our country—while a wide field of promise lies open before us,—can it be doubted that we shall continue to hold our place, eminent in the civilized world. We now stand a sample republic—free and independent:—blessed with equal rights; and in the full enjoyment of liberty,—regulated by law; and made secure by the principle of representation; and guiding every department of government under a respectful regard to public opinion and to public happiness.

When we look around upon our country, we find that the arts are established here, domestic happiness firmly planted, labor respected, agriculture elevated, and our manufacturers exhibiting a variety of fabrics which they are willing to bring in comparison with those of any portion of the earth.

Look again at our peculiar institutions. Labor stands independent and elevated, and is not reduced to the condition of either the subject, the serf, or the slave. Happiness is secured to every man; commerce is well supported; our manufactures prosperous, and our artisans receiving the full value of their industrial occupations. [Applause.] I know no page in history (continued the speaker) that can produce a parallel with the recent attitude of our country—at the same time feeding an army abroad; sustaining a foreign war; carrying on all our domestic institutions, and our great system of internal improvements; affording bread stuffs to relieve Ireland in her famine; yet without pledges or any new legislative burdens on the country; taking a loan at premium, and which now stands in market at thirteen per cent above par! [Applause.]

The time *was*, when it was avowed in the British House of Parliament, that "not even a hob-nail" should be made in America. The time *is*, when our country is able to manufacture articles for domestic supplies, and an increasing export, of an equal or higher grade than any that can be brought in competition. The same spirit which was thus avowed in the British Parliament has attended all our future progress; and it now offers us "*Free Trade*"—by the late navigation law of Great Britain. It offers the trade of her Island; less in size than several of our States, and especially the State of Georgia, and in this offer it withholds a reciprocal commerce with all her colonial institutions, spread in every quarter of the globe, and which constitute the material part of her Empire. For such an offer, she gravely calls it "*Free Trade*," and will claim to have access to this country, to be admitted into the many thousand miles of its coasting trade, with the right of free voyages even to California, and into the gold diggings. It is a trap, if not to catch flies, at least like the artificial fly used by boys to catch fish. She seems to fancy that our government will be caught by the term "*Free Trade*." It is the hope of my heart that our government will be wide awake, and better understand the great and growing interests of this nation. We have the right and are able to demand a thorough EQUALITY. In our youth, we have borne our part in all the improvements of the age, and a full share in the advancement of the civil institutions of the world.

The United States have a better carrying-trade, than all Europe combined. When "*Free Trade*" is granted to the vessels, then comes "the tug of war." The readiness of England for conflicting duties and countervailing regulations will not be forgotten. When our laws established a *nursery* for American Seamen, and gave a *Bounty* on the Fisheries, to create a carrying-trade, how long was it before duties were provided by England, prohibitory on Fish from a foreign country, and duty free coming from a colony. These regulations render it necessary for a British vessel only to touch on her return voyage at a colony, and thence home, duty free. Thus our *Bounty* on the Fisheries was turned to a carrying-trade and nursery for British seamen, and with contiguity to British ports, explains the surplus of *Foreign* "*Entries*" and "*Clearances*" appearing at the Port of Boston.

The value of the merchandise exported from Savannah in March, 1849, is stated to be \$1,224,115 :

Shipped in American vessels	67,226
“ in Foreign vessels	1,156,889
	<hr/>
	\$1,224,115
	<hr/>

The speaker said, the Timber Trade entered into this statement, the remarkable feature of which he would not now attempt to explain.

The speaker said, if the encouragement of Domestic Industry by a just Protection, must be withheld, and our laboring classess are to be reduced to the condition to which centuries of oppression have reduced the laboring classes of Europe, he was ready to admit that “Free Trade” was the appropriate means by which to accomplish such a result. To bring the productions of Europe, from its fifteen hours of daily labor for a stinted supply of the necessities of life, with the absence of all intellectual culture for himself and his children, into competition with the productions of the ten hours’ daily labor of this country, with every abundance, and civil and religious rights, there could be no uncertainty of the result in the open market of the world. The ten hour man must be driven from the competition. Agriculture, though a necessary, is not a profitable employment. The Artizan is the source of national wealth, and his encouragement should be a material object of national policy.

To the question that has sometimes been sneeringly asked : “*What has America done ?*”—this occasion forbids a full reply ; while, however, it seems appropriate to say that,

It was our FRANKLIN who called down the Lightning, and with his rod, guided and directed its course in its mad career. It is our MORSE who has taught it to read and write—to overleap time and space—and to deliver forthwith tidings of business to the remotest parts of our land.

It was our WHITNEY who gave the cotton-gin to the country and to the world. It has built up the agriculture of the South—given value to its soil—and made us the second commercial nation of the

world. It has, in addition, by its freights and return proceeds, increased one half the amount of our carrying-trade.

It was our FULTON who gave the world the Steam Engine applied to Navigation. Without it, how slow, how sluggish, how lingering, how tardy was our progress ! With it, what efficiency, what speed, what promptitude and celerity of movement ! It has enable us to accelerate our advances, and, with our skill and genius for inventions, to overtake in the race of competition the most advanced nations of the world, in all the useful improvements.

It was EVANS who gave us the high pressure Steam Engine, singularly adapted to the navigation of rivers, and indispensable for the use of our railroads and various manufactures. It was our BLANCHARD who gave his country the Lathe to turn unequal surfaces, and produce ready for use the gun-stock for the soldiers of our country, and which is now engaged and applied to the use of the fine arts in copying in marble any statuary which may be desired,—as well as for the turning of the shoe-last.

We have not time to add details. But in truth the time is not far distant when it may better be asked : “ What has America *not* done ! ”

[The speaker here paused, while the Band struck up an enlivening piece of music.]

On resuming, Gen. TALLMADGE spoke of the recent remarkable improvements in the Mechanic Arts, and labor-saving machinery. He called attention to some specimens of cast steel made in this country, under circumstances of great advancement in that particular department. He said the bars exhibited were pure American manufacture. It had been claimed that England alone could produce the highest grade of cast steel to be used in cutlery, and that she held her advantage by reason of peculiar clay or other materials used in the manufacture. It is a matter of national interest to us, and the Institute believe the discovery complete, that the Black Lead of this country makes the pots for the furnace to endure a heat adequate to the oc-

casion—and that the power of manufacturing steel is now thoroughly possessed by ourselves.

The speaker made particular reference to the cutlery, and the specimens of cast steel on exhibition, manufactured at the Jersey City Works. He considered them articles of the highest interest in a national point of view.

The value of cast steel *imported* into the United States per annum, is not less than three millions of dollars. The works referred to, turn out about one ton per day, or the one-sixtieth part of a supply. The immediate cause of this success, is to be found in the fortunate experiment of using black lead melting pots with anthracite coal, (cast steel being made in England with clay pots and coke for fuel.) He held up to view a sample black-lead pot, now in use here.

The American Institute, continued the speaker, has heretofore encouraged a number of meritorious individuals for improvements in the manufacture of iron and steel. The handsome beginning now exhibited, gives confidence to the hope, that within five years, a *full supply* of the very indispensable article of steel will be produced in our own country.

Premiums had been offered some time since by the Institute, to encourage, not only improvements in the iron manufacture, but especially in the use of anthracite coal and a new formation of the foundry. The speaker had the pleasure to announce that this object had been accomplished, and that good bar iron could be made *directly from the ore*, solely by the use of anthracite fuel; which he considered another great point gained—quite as important as that of a few years since, in the manufacture of pig iron with that fuel.

He then pointed to several bars of wrought iron on exhibition, stated that they were made by the new process, direct from the ore, and eminently worthy of attention. He made particular reference to the good effects of this improved mode of manufacture, in superceding the various heatings and blasts, and greatly increased expense

hitherto used, with the ability of bringing the product into market at greatly reduced rates.

He then showed a roll of remarkably fine and beautiful wire, made at the works of Mr. PETER COOPER, of Trenton, from blooms puddled with anthracite coal, expressly for railroad iron, and remarkable for the toughness of its material and strength of its size. The speaker continued that he was instructed to say, that *railroad iron* was made at the same factory, claimed to be of a superior quality, intrinsically worth from fifteen to twenty dollars per ton more than the ordinary English railroad bar; a circumstance which he considered ought to attract attention throughout the country.

The orders and receipts of Railroad bars from England in the year 1849, are believed to amount to Fifteen Millions of Dollars—a sum exceeding the amount of Breadstuffs shipped to England in the year of the Famine in Ireland,—showing the great importance of any improvement in the manufacture of Iron in our own country.

The speaker then referred to the improved machine for Planing Iron, then on exhibition—alleged to cause an annual saving of two millions of dollars, on the article of Files alone, which before were necessarily used for smoothing the surfaces, which this planing-machine claims to be ready to accomplish.

He pointed to the Iron-tub Casting, at the entrance of the Garden, made at the “Novelty Works,” for the Paper business. It is said to be one of the largest castings of the kind in this country; and, (Gen. T. added,) without giving the details, he was authorized to say that the very modern improvements in the process of Paper making were such, by means of labor-saving machinery, that we may now produce a line of twenty-four miles of ordinary newspaper width in one day, where formerly the corresponding labor would only produce an extent of one mile.*

* We have been furnished with the following statement, relative to the processes and results of the Paper Manufacture, under the old and the new systems of operation:

Formerly, the process was slow and laborious. Each sheet was made separately,

The speaker then referred to the Sewing Machine on exhibition, by which the needle was successfully made to work by the application of steam power, and demonstrated that it could sew a seam with extraordinary speed over manual labor.

He also called attention to the improvement of the Pin-making machine. It had before stood as a wonder of the age, (he said,) in being able to make and head complete at the rate of two hundred per minute. It now hastens its work, and will produce Pins perfectly made and complete, at the rate of six hundred per minute.

He said, it was PORTER, of Pennsylvania, who gave to his country new and improved machinery in the manufacture of *Slate* for roofs—but more especially for our *Common Schools*. Where an experienced man could before polish and frame ten or twelve slates in a day, he can now with this new labor-saving machinery, complete for market, ten or twelve dozen per day. The cost of slates is now about as many cents as it was shillings before, with a great hindrance to importations. The improvement is one of the material pillars of the

and four and a half reams of newspaper, of the size of twenty by thirty inches, was technically termed "*a day's work*;" and required the constant labor of three men, with the occasional assistance of two more. These four and a half reams contained two thousand one hundred and sixty sheets, which, if placed close together in a line, would measure five thousand four hundred feet—a little more than one mile.

By the introduction of machinery, this part of the process of Paper-making has been entirely changed. The paper is now run off in one continuous sheet, and, on our best machines, at the rate of forty-five feet per minute. Some of the machines in use being of the width of eighty-four inches, the attention of two men and four girls is required to form Paper of the size before mentioned, twenty by thirty inches. Such a machine—working the same amount of time as the old fashioned variety, (twelve hours)—will make thirty-two thousand four hundred feet of paper eighty inches wide!

But this is not all. When the three men with their assistants, under the old plan, had finished their day's work and made their *one mile* of paper, it was wet, and it became necessary to dry it upon poles. If the weather proved favorable, this might be done, taken down and finished in *five days*—ten times longer than the time occupied in making it. Now, when the two men and four girls have in twelve hours made their twenty-four miles of paper, it is dry, and when cut into sheets, is ready for the printer; and this without regard to the weather, be it rain or shine.

Thus it is evident that formerly it took ten times as long to prepare the paper for market, after it was moulded into sheets, as was now required to convert it from the pulp—and that the labor of five persons in one day produced for the market only the *one-twenty-fourth part* now obtained by the use of labor-saving machinery.

common school system—of the wide dissemination of that *Education* which is the glory of our nation ;—the blight of despotism ; and the bane of monarchy.

The speaker next pointed to the productions of agriculture of a mammoth character, then on exhibition,—specifying several of them, and among others, a cheese from Ohio of some seventeen hundred pounds weight. Passing rapidly over this ground,

He then held up and called particular attention to a specimen of the fine shawls manufactured at the Bay State mills, in Massachusetts—where the progress of this work is such that the Company give constant employment to one thousand laborers ; and produce at their mills a thousand of these shawls per day. The speaker passed a well-merited eulogium upon the extent and character of this comparatively new branch of American manufactures.

The premium piece of broadcloth was then exhibited, from among other pieces of great excellence and merit—made from American wool, and remarkable for its fineness and the delicacy of its manufacture.

The next subject was one of peculiar interest: a specimen of American Linen, made from American flax. This linen was of very fine and superior quality, and obtained as a premium “The Tallmadge Gold Medal,” which it well deserved.

Gen. T. then asked the spectators, at their leisure, to continue their examination in detail—the occasion forbidding him further to specify, than to make a very brief allusion to “Dodge’s Cop-Spinner”—believed to be a new and decided improvement in the spinning of cotton. it was intended, he said, and was fully able to spin both warps and fillings with equal accuracy. The importance of the improvement, he continued, might be judged by the fact, that this machine was capable of running one-third faster, (doing equal work,) than the ordinary Cop-Spinner,—a gain sufficiently large to revolutionize this pursuit. The spindles of this machine make with ease ten thousand turns per minute, throwing forty feet of thread in the same time.

Gen. T. said he had seen an extract from a Delaware paper, stating, "That a Delaware farmer had taken one yard of cotton cloth, manufactured with *sizing*, called "Ohio extra sheeting" and weighed it. The weight was four ounces. He then carefully extracted the starch from it by washing, and on drying and weighing the cloth again, he found it had lost 184 grains. Taking this fact as a basis, it establishes statistics, important to the wheat and cotton crops of the United States.

The cotton crop of the United States in 1848 was over two and a half millions of bales. Allowing the bales to average four hundred pounds each, and the whole crop to be manufactured like the yarn above specified, it would require for *sizing*, two millions and a half barrels of flour, or over twelve million bushels of wheat. It was his impression that something like one half the cotton crop is manufactured with *sizing*. It is said that more barrels of flour are used in a year for the *sizing* of cotton manufactures at Lowell than were usually exported in a year to Great Britain before the recent famine. It is also said, fifteen million yards of calico are annually manufactured in this country, which alone would require over two hundred thousand barrels of flour for *sizing* at the rate found in the yard above mentioned. These calculations, necessarily loose and imperfect, still show in a striking light, the benefit farmers will derive from the establishment and encouragement of home manufactures. In these calculations no account is taken of the large amount of wheat, corn, and other agricultural productions, required for the support of the manufacturers themselves. If the farmer is desirous for the employment of his labor, and of a sure and profitable market for his produce, let him earnestly and efficiently encourage the manufactures of the country.

The present consumption of *Cotton* in the United States is estimated at 500,000 bales per annum, which is more than the entire Crop in 1824. This does not include a vast quantity, which goes up the Mississippi, Ohio, and also out from the Tennessee and Cumberland rivers, for the supply of the mills in Indiana, Ohio, Western Virginia, and Pennsylvania. There are said to be *upwards of two hundred and fifty Cotton mills to the south of Mason and Dixon's line*: in these points and sources of consumption, it is believed 150,000 bales are used, making a total, not less than 650,000 bales worked up, at home.

The quantity of Cotton goods made in the United States is estimated at 720,000,000 of yards, of which about 80,000,000 are exported, leaving 640,000,000 for home consumption.

That the improvements introduced in Machinery has a tendency to lessen the price of Manufactures, is a truth too evident to need demonstration ; but it by no means follows, that they lessen the demand for useful labor. The number of laborers employed is really increased, by the useful improvements and inventions introduced in the Arts. We find the following, which is copied from a recent French work, on Political Economy, by Mr. JOSEPH GRANNER :—

“In many cases, machines, far from supplanting human labor have multiplied it. In fact every abridgement of labor, by reducing the cost of production, carries the manufactured article to the door of a greater number of consumers ; and experience proves the consumers multiply in a greater degree than the price decreases, especially when the method of manufacture improves the commodity.* The diminution of the price by a fourth has been known to double the consumption. We will only cite two examples—printing and cotton spinning. Although the steam press enables one man to do the work of two hundred, the multiplication of books, the arts which are connected with them, such as the casting of type, the fabrication of paper, the professions of author, corrector, binder, etc., employ a thousand times as many persons as formerly were occupied in them ; and what a difference in form and price between the manuscripts of early times and the books of the present ! When we observe the perfection of the machinery for spinning cotton, and the admirable rapidity with which the bobbins are covered with thread, we may fancy that the greater number of persons formerly employed in spinning have been thrown out of work ; yet precisely the reverse has happened. Before the invention of machinery, only 5200 female spinners at the wheel, and 2700 weavers, altogether 7900 persons, were employed in England ; whilst in 1787, ten years later, 150,000 spinners, and 247,000 weavers, or 397,000 persons were reckoned.”

In this age of Invention and Patent Rights, it will be curious to look at the *Ancient* Law of Patents in England, and mark the *school*,

from which certain of our modern statesmen obtained REASONS for the violence of their opposition to Internal Improvements, and the encouragement of Domestic Industry.

Sir Edward Coke, in his learned disquisition on the Law of Patents, lays down these two doctrines : First, he says, “ a patent is not grantable, for an invention that is not generally *convenient*.” He cites as an illustration of the rule, a solemn decision, of which he highly approves, in the case of an invention, by means of which a material for bonnets and caps might be thickened in a fulling-mill, in greater numbers in one day, than by the labor of *four score men*. On the validity of this patent coming in question, the court determined it was *void*, on account of its “ *inconvenience*,” by “ *making workmen idle*.”

The other doctrine laid down by Sir E. Coke, is, “ that no patent can be good, which is for an *addition* to an old manufacture.” And for this, a grave decision is cited, in which the Court said, “ that it was much easier to add than to invent, for *adding* was only putting a new button on an old coat.”

3d pt. Institutes—5 vol., p. 184—Title, “ Against Monopolists.”

In the same spirit of *liberality*, a prosecution for Treason was had in the Reign of Edward IV., when a man named William Walters, who kept the *Crown Tavern* in Cheapside, was hanged, drawn and quartered, for saying to his little boy, to keep him quiet, “ that he would one day, make him Heir to the Crown.”

The speaker said,—how well, from such extracts, may we learn at this day, the blessings of our age and country. May we not hope that the violence of opposition will cease, against the countervailing measures and a just protection, against foreign encroachments.

After a few other remarks, upon this and kindred subjects, the speaker brought his observations to a close. He said he would finally avail himself of this opportunity to remark, that he had received gratifying information from gentlemen of the South, and from sources which he deemed reliable, that the South *had entered into manufactures*. Georgia already had her forty-five cotton factories; South

Carolina her forty-five; Virginia forty; North Carolina thirty-five; and Alabama twenty. He felt that this circumstance was one of great national interest. The South also had several furnaces, and had begun the manufacture of iron.

The South had also entered into the railroad system. These events seemed, he said, of much importance. They secured the advance in wealth and the prosperity of the South. By this *new union in pursuit*, and the noble object of the employment of domestic industry, there is produced a unity of interest which calls for corresponding legislation. It begat a common interest and promised to abolish the odious distinctions of North and South in our country. Cemented together by the bonds of union, of country, of feeling and of interest, it secured the great result of the preservation of the perpetual Union of that common country, to which we all stand pledged. A union thus consummated and actuated with one heart, may be ready to stand, and to secure its preservation against a hostile world. With the undaunted spirit and the strong arms of such men in the field, and with our future JACKSONS, our SCOTTS, and our TAYLORS to lead, we need not fear but that success and victory will ever fall to our lot. A living hero has recently given "Buena Vista" as a watchword for us, and as a caution to the future foes of our country.

Gen. TALLMADGE here concluded, amid the loud and continued plaudits of the assemblage, by whom his remarks were listened to, throughout, with great decorum and attention.

The president stated that he was authorized to say, that the gross receipts for entrances at the present exhibition, have amounted to \$18,675. This sum is held to provide for the expenses and the premiums awarded, which are as follows:

- 50 gold medals.
- 238 silver medals.
- 61 silver cups.
- 430 diplomas.
- 152 volumes of agricultural works.
- \$108 and 24 certificates, (apprentices' premiums.)
- \$110 and 6 bronze medals, (Van Schaick premiums.)

1 gold medal, (Tallmadge premium.)

\$25 cash premium.

So closed the twenty-second anniversary of the American Institute of the city of New-York—an occasion of profit and of pleasure both to the owners and to the spectators of its wealth of American products.

Donation of Books from Alexander Vattemare, Esq.

AMERICAN INSTITUTE, }
New-York, Dec. 27, 1849. }

ALEXANDRE VATTEMARE, Esq.,

Sir—The American Institute gratefully acknowledge the receipt, through your hands, of a valuable and highly esteemed collection of literary and scientific works, consisting of one hundred and twenty five volumes.

The books, you inform us, are presentations from various municipalities, and from literary, scientific, philosophical and industrial associations of France. To each of them we desire to tender through you, the sincere thanks of the American Institute. And in return for this kindness and attention, we desire also to transmit through your agency, a set of the transactions of our institute to the following institutions and associations of France :

To the City of Paris.

City of Nantes.

City of Marseilles.

City of Rouen.

City of Bordeaux.

City of Wetz.

Academy of Science, Paris.

Agricultural Society of France, Paris.

National Academy of Rouen.

National Assembly.

Horticultural Society of France.

Minister of Agriculture and Commerce.

Museum of Natural History of France.

Society for the encouragement of National Industry.

And to place in your possession six sets of the same to be disposed of in France as you may desire.

I have the honor to be very respectfully yours, &c.,

ADONIRAM CHANDLER, *Svo. Agent.*

Catalogue of Books received from Alexander Vattemare, Esq.

- Memoires d'Agriculture, d'Economie, Rurale et Domestique—Memoires of the Royal Society of Agriculture of France. 1814 to 1846. Presented by the Society.
- Maison Rustique du XIX^e Siecle 5 tomes,—Farm house of the nineteenth century. Presented by the minister of commerce and agriculture.
- Bulletin de la Societe d'Encouragement pour l'Industrie Nationale—Bulletin of the Society for the Encouragement of National Industry. 1843, '44, '45, '46. Presented by the Society.
- Conseils General de l'Agriculture des Manufactures et du Commerce—General Councils of Agriculture, Manufactures and Commerce. 1841, '42, '45 and '46.
- Gasparin's Cours d'Agriculture 3 tomes—Gasparin's Course of Agriculture, 3 vols.
- Schwerz' Culture des Plantes a grains Farineux—Schwerz' Culture of Plants and Farinaceous Grains. By Baron Schauenburg.
- Schwerz' Culture des Plantes Fourragères—Schwerz' Culture of Forage Plants. By Baron Schauenburg.
- Agriculture Francais, 5 tomes—Agriculture of France. By the Inspectors of Agriculture.
- Stud Book Francais, 3 tomes—Stud Book of France, or Register of Horses of Pure Blood raised or imported into France.
- Physiologie de la Terre—Physiology of the Earth.
- De la Fabrication du Fromage. Par Dr. Gera de Conegleano—The Manufacture of Cheese. By Dr. Gera de Conegliano.
- Colonisation et Agriculture de L'Algerie—Colonization and Agriculture of Algiers. By L. Moll. 1845. 2d vol.
- Manuel Populaire D'Agriculture—Popular Manual of Agriculture, 1844.
- Manuel D'Agriculture. Par I. Martinelli, 1846—Manual of Agriculture. By J. Martinelli, 1846.
- Tableaux de Population, de Cultures, de Commerce, et de Navigation—Tables of Population, Cultivation, Commerce and Navigation of the French Colonies, 1839 to 1842.

Preservatif D'Agromanie Empirique ou Lettres Agricoles—Preservation from Farm Mania.

Statistique des Routes Royales de France 1824—Statistics of the Royal Roads of France.

Receueil de Documents Statistiques, 1 tome 1837—Collection of Statistical Documents.

Etudes de Gites Mineraux, 1836—Treatise on Mineral Beds.

Documents Relatif aux Canaux, 1840—Documents Relative to Canals.

Rapport au Roi des Canaux—Report to the King on Canals.

Experiences sur les Roues Hydrauliques par A. Morin—Experiments on Hydraulic Wheels by A. Morin.

Experiences sur les Tirage des Voitures Faites en 1836 et '38—Experiments on the Draft of Carriages by Aellorrie.

L'Allemagne: Agricole, Industrielle et Politique, 1842—Germany : Agricultural, Industrial and Political. By Emile Jacquemin.

Traite Complet de L'Eleve' du Cheval par E. Houel—Complete Treatise on the Horse or Veterinary Student's Assistant.

Schwerz' Preceptes d'Agriculture Pratique—Schwerz' Precepts of Practical Agriculture.

Rapport fait an Jury Central de l'Exposition des Produits de l'Industrie Francais sur les objets relatifs a la Metallurgie, par A. M. Horon de Villefosse—Report made to the central committee of the Exposition of the Industrial Products of France relative to Metallurgy.

Manuel Elementaire du Cultivateur Alsacie, 1842—Elementary Manual of the Alsattian Cultivator. By I. L. Stoltz, 1842.

L'Agriculture Raisonnee ou Manuel complet et Special du Cultivateur dans les Deux Sevres et Department de l'Ouest, par Picard—The Cultivator's Complete Manual.

Culture des Muriers et l'Education des vers a soie—Cultivation of the Mulberry Tree and the raising of Silk Worms.

Traite sur la maladie de Poitrine du Gros Betail, par O. M. Delafond—Treatise on pulmonary diseases of cattle.

Exposition des Produits de l'Industrie Francais en 1844—Catalogue of the exhibition of the Industrial products of France in 1844 vols 1, 2 and 3.

- Annales des Haras et de Agriculture—Treatise on the Stud Horse and Agriculture.
- Commentaire sur Les Lois Rurales Francais—Commentary on the Rural Laws of France.
- Monographie de la Pomme de Terre, par J. Bonjean—Monography of the Potato, including a general history of its diseases.
- Notes Economiques sur l'Administration des Richesses et la Statistique Agricole de la France, par C. E. Royer—Economical Notes on the management of Wealth and the Agricultural Statistics of France.
- La Normandie Agricole, Journal d'Agriculture Pratique, d'Economie Rurale et d'Horticulture—Journal of Practical Agriculture, Rural Economy and Horticulture of Normandy.
- De la Race Bavine Courte Corne Ameliore, dite Race de Durham, en Angleterre and Etats Unis D'Amerique et en France, par M. G. Lefebvre, St. Marie.—The Short Horned Durham race, ameliorated in England, United States of America, and in France.
- Vacherie National du Pin, par Gustave Le Conteulx.—The National establishment of cows, at Pin.
- Concours D'Animaux de Boncherie a Poissey, Lyon et Bordeaux, dupins la foundation du Concours de Poissy en 1844, jusqu'a jour.—Competition of Animals for slaughter at Poissy, Lyons and Bordeaux, from the foundation at Poissy in 1844, to this day.
- Manuel deL'Eleveur de Bites a Cornes par F. Villeroy.—Farmer's Library, a manuel for breeders of horned cattle.
- Agriculture Francaise, par M. M. Le Inspecteurs de Agriculture.—French Agriculture, by the Inspectors of Agriculture.
- Dialogues Populaires sur le Droit Rural, par P. Jacques de Valserrres.—Popular Dialogues on Rural Laws.
- Cours D'Horticulture, par A. Poiteau.—Course of Horticulture,
- Assemblee Nationale Legislative Rapport, par M. Casimer Perier.—National Legislative Assembly Report.
- Traite de la Culture du Murier, par J. Charrel.—Treatise on the Culture of the Mulberry.
- Traite Complet de Vinification, par H. Machara.—Complete Treatise on Vinification, (wine making.)

Guide des Propriétaires de Biens Sonmis au Metayage, par Le Cte. de Gasparin.—A Guide to Owners in reference to property to let.

Etudes Hippologiques, par Eug. Gayot.—Studies of the Horse.

Cours D'Agriculture Theorique et Pratique a l'usage des plus simples Cultivateurs; Suivi d'une. Notice sur les Chanlages de la Mayenne, par Emile Jamet.—Agricultural Course, Theoretical and Practical for the use of common farmers. Notice of the practice of using lime on seeds and land of la Mayenne.

Le Petit ou Elements de Botanique et de Geologie Agricoles, par N. C. Seringe.—The Little Agriculturist or Element of Botany and Agricultural Geology.

Rapport General sur les questions relatives a la Domestication et a Naturalization des Animaux utiles, par M. Isidore Geoffroy, Sainte Hilaire.—General Report on the questions relating to the Domestication and Naturalization of useful animals.

Historie de la Maladie des Pommes de Terre en 1845, par M. J. Decaisne.—History of the Potato Malady in 1845.

Traite des Magnaneries, par J. Charrel.—Treatise on Cocooneries.

De la Culture du Murier, par M. M. P. Boyer and G. De Labaume.—Culture of the Mulberry.

Petit Traite de Comtabilite Agricole en Partie Simple, par Edmond de Granges de Ransy.—Small Treatise on Farming Accountability.

Traite des Amendments et des Engrais, par P. Joigneaux.—Treatise on Amendment of Soils and on Manure.



AMERICAN INSTITUTE, }
February 13th, 1850. }

(Translation from the French documents lately received from Paris.)

*Report upon the Foreign Publications addressed to the National
Central Society of Horticulture of Paris.*

BY MR. PARISOT DE CASSEL.

Number 36. The vineyard years from A. D. 1200 to A. D. 1701. being the result of researches in every record and chronicle on the subject. The author regrets that he is unable to find the accounts of all the years ; hopes that other persons may be able to supply the deficiency.

This laborious author has left but very few blanks to fill. From 1700 to 1850 there are abundant records of weather crops, &c.

The course of the seasons and their attendant effects on vegetation, are very interesting. They lead us to a knowledge of those limited changes of season on our globe for a great length of time, and enable us rationally to behold *as long a future*, &c., &c. They are valuable for reference—and somewhat like astronomical observations—may correct history occasionally.

H. MEIGS,

Sec'y of the Farmers' Club.

February 13, 1850.

Year.

1200, Wine abundant, but of middling quality.

1201, do do

1202, Little wine, but good.

1203 to 1210 Results not known.

- 1216, Winter excessively severe, no wine.
 1217, to 1225, Results not known.
 1226, Wine abundant and bad.
 1227, to 1233, Results unknown.
 1236, Wine abundant, middling.
 1237, Wine very abundant.
 1238 to 1250, Results unknown.
 1251, Wine, great abundance.
 1252, Not known.
 1253, Grapes abundant.
 1254, Not known.
 1255, Wet year, sour wine, Grapes and other fruits very dear.
 1256, and 1257, Unknown.
 1258, Wine abundant and bad.
 1259, to 1277 Unknown.
 1278, The vines suffered much from frost, they were frozen from 16th to 17th of May.
 1279, A productive year, wine good but little of it.
 1280, Very little wine and bad, deep snow on 17th of June—a famine.
 1281, and 1282, Unknown.
 1283, Severe cold 13th of May, all the vines suffered.
 1284, to 1286, Unknown.
 1287, Little wine.
 1288, Unknown.
 1589, Wine and fruits scarce, winter mild, little snow, strawberries in February. The vine flowered in April. In the beginning of May, deep snow followed by severe cold, every vegetable perished.
 1290, Wine abundant.
 1291, Unknown.
 1292, But little wine.
 1293, and '94, Unknown.
 1295, Wine abundant and good.
 1296, Unknown.
 1297, Grapes plenty, wine middling.
 1298, to 1301, Unknown.
 1302 **Wine** sour

- 1303 Wine exquisite, summer very hot and dry and little other fruit.
1304 Wine little and middling.
1305 Severe winter every thing frozen.
1306 to 1300 unknown.
1311 Few grapes, winter cold, summer wet ; all rotted on the vines
1312 to 1313 unknown.
1314 No grapes, the heat and draught were such that the vineyards
seemed to be burned up ; 13 weeks without rain, a famine
and then a pestilence followed.
1315 Very little wine.
1316 Crop insignificant, winter very severe.
1317 Provisions very dear, vines and fruit trees were suffocated under
the extraordinary depth of snow.
1318 Wine abundant and excellent, fruits good.
1319 Wine sour.
1320 Wine sour, a wet, year grain rotted on the stalk, grain was very
dear, and for 7 years after.
1321 Wine only passable.
1322 Unknown.
1323 A rigorous winter.
1324 A rigorous winter.
1325 Grapes plenty but sour, summer wet, deep snows.
1326 Wine sufficiently plenty.
1327 Wine bad.
1328 Abundance of wine of very superior quality, mild winter, fruit
trees flowered in January, the crops of grain were gathered
about Pentecost whitsunday, near the last of May, and the
vintage 15 days after abundant.
1329, to 1332 unknown.
1333, Excellent wine at good prices.
1334, Grapes abundant.
1335, The latter season very wet, the grapes failed.
1336, to 1337. unknown.
1338, A scarcity of wine. In midsummer the grasshoppers came
from the East and devastated every thing in their course.
Hungary, Austria, Suabia and Bavaria suffered most.
1339, A hot summer.
1340, and 1341 unknown.

- 1342, Very stormy, deep snow.
- 1343, Absence of wine, the heat in summer insupportable, the drought killed every thing.
- 1344, Unknown.
- 1345, A marked abundance of fruit.
- 1346, Unknown.
- 1347, Wine abundant.
- 1348, An earthquake felt in all Germany and Italy, on the 27th of January.
- 1349, to 1356, unknown.
- 1357, Few grapes, sour wine and a sterile year.
- 1358, to 1361, unknown.
- 1362, Excellent wine, summer warm and dry, followed by a very long winter so that many cattle died for want of food.
- 1363, and 1364, unknown.
- 1365, General abundance.
- 1366, Wine abundant.
- 1367, Wine bad.
- 1368, and 1369, unknown.
- 1370, Stormy and hail.
- 1371, Unknown.
- 1372, No grapes.
- 1373, to 1381, unknown.
- 1382, —Wet, wine sour, good crops of grain.
- 1383, Good crops of wine and fruits.
- 1384, Much wine and good.
- 1385, Little wine but good.
- 1386, Abundant and of the best quality.
- 1387, Abundant and of the best quality.
- 1388, to 1390, unknown.
- 1391, Wine bad, fruits good.
- 1392, All destroyed by frosts.
- 1393, Unknown.
- 1394, Wine of extraordinary fine quality, a year of abundance.
- 1395, to 1397, unknown.
- 1398, Wine plenty, but middling quality.
- 1399, Wine plenty, but middling quality.
- 1400, and 1401, unknown.

- 1402, Severe frosts in May.
1403, to 1406, unknown.
1407, A rigorous winter.
1408, The most rigorous winter in the memory of man. In Germany
the forest trees were burst by frost.
1409, and 1401, unknown.
1411, Grapes plenty, wine middling.
1412, Wine good.
1413, Wine good.
1414, Great abundance of wine and spirits.
1415, and 1416, unknown.
1417, Wine sour.
1418, Wine sour.
1419, Wine sour.
1420, Wine and grain sufficient, winter mild ; trees budded in March,
the vine flowered in April ; the vintage occurred about
Pentecost, about the last of May, and the autumn began
about the end of August.
1421, Success in wine, fruits and grain, the fine markets of this year
became for a long time proverbial.
1422, Satisfactory year.
1425, Very good wine but little of it, the vines suffered from cold.
1124, and 1426, Abundant crops, the last year winter mild, trees
showed their buds in December.
1427, Grapes plenty—wines bad.
1428, Good wines.
1429, Sour wines, little grain, severe winter ; cold spring, wet summer
vines froze.
1430, Wines and grain destroyed by frost ; wine and fruits sour and dear.
1431, Wine sufficiently abundant.
1432, Wine and fruits excellent and abundant.
1433, The vines frozen on the 18th January ; summer very rainy ;
wine scarce ; grain sufficient.
1434, Wine middling, heavy frost 12th of May.
1435, Wine excellent, middling crops of grain.
1436, No wine.

- 1437, Little wine, but of a very superior quality. The vines suffured during the vigorous winter and spring—an abundance of fruits.
- 1438, to '40, Unknown.
- 1441 No wine at all, much snow which remained 14 weeks. A frightful hurricane on the 2d of July—much hail ; many of the hail stones weighed more than a pound each.
- 1442, Rich in good wine.
- 1443, Few grapes and bad—little grain—very cold winter ; much snow which lay till the end of April ; a wet summer.
- 1444, Good wine.
- 1445, Wine abundant but middling in quality—fruit rich.
- 1446, Little wine but good. A spring frost destroyed the fruits.
- 1447, Sour wine—cold made ravages in the vineyards and fields.
- 1448, Wine abundant and exquisite—year generally good.
- 1449, The same.
- 1450, Unknown.
- 1451, Abundance of wine.
- 1452, Unknown.
- 1453, Sterility, sour wine—poor crop of fruit.
- 1454, Much grapes but sour ; wet summer.
- 1455, Rainy year ; sterile ; little fruits ; wine not potable.
- 1456, Wet and cold.
- 1457, Wine plenty enough, but of middling quality. Torrents of rain in summer and followed by severe drought.
- 1458, Little wine and middling quality, abundant grain. A wet summer.
- 1459, Cold and sterile—little wine and sour—vines frozen in the spring.
- 1460, The same.
- 1461, Wine superior and in sufficient abundance. *A frost in June.*
- 1462, Wine middling. Heavy frost in the summer.
- 1463, Little wine and middling ; cold wet year.
- 1464, Little wine but good, satisfactory crop of grain.
- 1465, Great fertility—wine good and abundant. The vines flowered in May.
- 1466, Sour wine, bad grain ; late season, rigorous winter.
- 1467, Superior and abundant wine and a remarkable crop of grain.

- 1468, Wine and grain middling ; late season, rigorous winter
1469, Few grapes, sour ; flowered late. Crops failed.
1470, Much wine of the first quality, grain abundant.
1471, Little wine, good ; grain abundant.
1472, Wine and grain came well.
1473, Little wine but of a quality truly extraordinary ; very hot
summer ; winter of extraordinary rigour. Rich crops of
grain.
1474, Little wine but good ; frosts in spring. Grain satisfactory.
1475, General abundance.
1476, A good year, much wine and that good.
1477, Little wine and middling ; grain crops did not succeed.
1478, Fertile in wine, fruits and grain.
1479, Little wine but good.
1480, Little wine, excellent ; grain in abundance.
1481, Little wine, sour ; cold and wet year.
1482, Fertile year ; wine good and abundant.
1483, Same—but heat extraordinary.
1484, Much wine, good. A year of abundance.
1485, Little wine and sour. A sterile year.
1486, Little wine but good.
1487, Little wine middling quality, late ripening.
1488, Much grapes, sour wine ; rainy cold year.
1489, Wet summer. Bad crops.
1490, Wine and grain poor. *Abundant snow in May* ; very heavy
rains and frosts in summer.
1491, Wine and grain bad ; winter very vigorous. The rivers frozen
for 10 weeks.
1492, Little wine and bad.
1493, Long summer ; good wine. Vines frozen in winter.
1494, Great abundance.
1495, Good wine ; rough winter ; fertile year.
1496, Wine excellent, although many vineyards suffered from frost ;
favorable summer.
1497, Remarkable fertility, although the vines suffered a little at the
time of flowering, but the grapes did very well.
1498, Wine sour ; grain scarce ; year rainy and unfavorable.
1499, Good wine and plenty of it ; great fertility.

- 1500, Little wine but good; abundance of grain.
1501, The same.
1502, Wine and grain, moderate quantities.
1503, Abundant and good wine; very hot summer; general abundance.
1504, The like.
1505, Little wine, good; a fertile year.
1506, The like.
1507, Much grape, bad wine.
1508, Wine abundant and superior; little grain.
1509, Wine plenty and excellent.
1510, The like.
1511, Little wine and bad, grain deficient; a wet and sterile year.
1512, Sour wine, little grain, white frosts and hail.
1513, Little wine but good, grain succeeded; heavy white frosts in spring.
1514, Wine and fruits succeeded well; great abundance of every thing.
1515, Grapes abundant, wine sour, grain plenty enough; a cold and wet year.
1516, Little wine but good; heavy frosts in spring.
1517, Little wine and bad; sterility.
1518, Few grapes, wine excellent; favorable summer.
1519, Great fertility.
1520, Little wine, sour; middling crops of grain; cold and wet summers, vines suffered from frost.
1521, Abundance of wines, fruits and grain.
1522, Little wine but excellent; rigorous spring; late season; but notwithstanding favourable.
1523, Great fertility.
1524, Little wine and bad; cold summer; heavy frost about Pentecost.
1525, Little wine, but excellent; frost in May. Good crop of grain.
1526, A sterile year; cold spring.
1527, Wine very bad; heavy frosts in spring and Autumn.
1528, Wine enough of middling quality; grain did well.
1529, Wine very sour; the summer wet and cold.
1530, Few grapes; wine good and spring cold.
1531, Grapes plenty; wine middling; grain plenty.

- 1532, Great general sterility.
1533, The like.
1534, Little wine but good ; a rainy year.
1535, Fertile ; wine remarkably good and abundant.
1536, Fertility still more remarkable ; great heat.
1537, Little wine ; potable ; vines suffered during the time of their flowering from too much humidity.
1538, Sour wine ; grain failed ; a cold wet year.
1539, Abundant of wine of middling quality ; a rich crop of grain.
1540, Wine remarkable for growth ; much grain ; summer of extraordinary heat. Drought felt here and there.
1541, Not much wine but good ; heavy spring frosts ; a good crop of grain.
1542, A late season ; sour grapes ; vintage in November.
1543, Few grapes ; wine good ; good grain season, but the vines suffered during the flowering.
1544, Bad wine ; grain did well.
1545, Abundance of wine and good too ; rich crop of grain. A hot summer.
1546, Wine in great quantity and excellent ; grain in abundance. A very fertile year.
1547, Extraordinary fertility, wine good and plenty.
1548, A middling year, wine sour.
1549, Bad wine, abundant grain, severe droughts.
1550, Wine, fruits and grain did well.
1551, Great abundance, hail in May,
1552, Abundance, dry spring.
1553, Wine middling, vines and trees suffered from frost, summer favorable, autumn rigorous.
1554, Little wine and bad, middling year.
1555, The like.
1556, Wine good and plenty, hot summer, great fertility.
1557, Bad wine, late flowering, rainy summer.
1558, Wine good and abundant, hot summer, very fertile year.
1559, Sour wine, grain scarce, late and rainy year.
1560, Plenty of grapes, some wine, little grain ; rainy year, winter excessively cold.
1561, Bad wine and little grain.

- 1562, Little wine, but good. On the 3d of August the heavy frost destroyed all the grain.
- 1563, Sour grapes, want of grain ; wet summer, very cold winter.
- 1564, Wine failed ; winter very cold and of long duration.
- 1565, Little wine and bad ; the winter long, vines frozen.
- 1566, Plenty of grapes, wine bad, wet summer, grain did very well.
- 1567, Very hot summer, wine plenty and good.
- 1568, Grapes failed, spring cold, only a middling crop of grain.
- 1569, Little wine and bad ; winter very rigorous. Heavy white frosts in spring and autumn.
- 1570, Grapes did not ripen ; a wet and sterile year.
- 1571, do and a rigorous winter.
- 1572, Little wine, but remarkable in quality. Heavy frosts in May and April, and a hot summer.
- 1573, Little wine and bad ; frost in spring, summer hot enough.
- 1574, Few grapes, wine middling.
- 1575, Grapes plenty, wine very good ; spring cold, summer favorable.
- 1576, Few grapes, but very good wine.
- 1577, Little wine and sour ; the flowering suffered from great rains.
- 1578, Not much wine, but very good.
- 1579, Grapes plenty, wine bad ; spring beautiful, heavy rains in August and in September.
- 1580, Grapes did not succeed, a wet year, but grain did well.
- 1581, Little wine and bad, a mild winter and a humid summer.
- 1582, Grapes plenty, but wine sour.
- 1583, A year of abundance.
- 1584, Abundant wine of middling quality ; great fertility in other respects.
- 1585, Grapes abundant, wine bad ; favorable spring, followed by a rainy summer.
- 1586, Bad wines, rigorous winter and a rainy summer.
- 1587, The like.
- 1588, Little wine, middling quality ; rigorous winter, cold spring
- 1589, The like.
- 1590, Few grapes, wine of extraordinary fine quality ; cold winter, very hot summer, early vintage.
- 1591, Little wine and bad, a sterile year.
- 1592, Little wine, middling quality ; heavy frost near the end of May

- 1593, Few grapes, very good wine ; mild winter, white frosts in the spring.
- 1594, Little wine, bad; very cold winter, wet year, white frosts in the spring and autumn.
- 1595, Grapes plenty, wine bad; late and rainy year.
- 1596, Not much wine but excellent; a year of abundance.
- 1597, Grapes failed; severe hail storms in July, August and September very rainy.
- 1598, Plenty of grapes but the wine bad; *much snow in summer*; torrents of rain, cold and humid autumn, vintage late.
- 1599, Wine extraordinary in quantity and quality; the spring was early and warm; the vines flowered before Pentecost, the latter end of March.
- 1600, Wine middling; winter and spring rigorous.
- 1601, No wine; spring cold and summer wet.
- 1602, Little wine and middling; frosts in spring and hail in summer.
- 1603, Wine good and abundant; spring cold.
- 1604, Wine plenty but bad, great crops of grain; spring late and wet.
- 1605, Wine plenty and of superior quality; early vintage. General abundance.
- 1606, Few grapes; sterile year; very cold winter, trees were frozen. Rainy summer, cold autumn.
- 1607, Little wine but good, fruits excellent; heavy frosts in May and June.
- 1608, Grapes failed; winter cold, summer wet.
- 1609, The like.
- 1610, Extraordinary vintage and very early.
- 1611, Abundance of grapes, wine bad; summer wet, autumn cold.
- 1612, Few grapes, wine good; much hail.
- 1613, Plenty of grapes, wine sour; winter mild, much hail in May.
- 1614, Little wine and bad; long winter, heavy snows; crops generally bad; late season and cold and rainy.
- 1615, Little wine, but of the first quality; a favorable year.
- 1616, Much the same, but with great heat; vintage about the middle of September.
- 1617, Grapes in great quantity, wine sour; frost began in September.
- 1618, Grapes enough, wine but middling; a fertile year.

- 1619, Few grapes, wine very good ; heavy frosts in spring; rich crops of grain. Winter very cold.
- 1620, Little wine, middling quality ; stormy year.
- 1621, Few grapes and bad; hard frosts in June. Winter of extraordinary rigor.
- 1622, The like.
- 1623, The like. Rainy summer, considerable hail.
- 1624, Little wine but excellent; a stormy summer.
- 1625, Abundance of grapes ; wine of middling quality ; great inundations in May and part of June. Extraordinary heat in July.
- 1626, Few grapes, wine sour ; hard frost in spring and a wet summer.
- 1627, The like ; crops generally failed ; late spring ; frost in May ; frequent storms and hail in summer.
- 1628, Few grapes and sour.
- 1629, Good wine in abundance ; warm summer ; early vintage and harvest ; winter rigorous.
- 1630, The like.
- 1631, The like. A year of extraordinary fertility.
- 1632, Few grapes ; bad wine ; rainy summer ; cold Autumn.
- 1633, The like.
- 1634, Abundance of wine of the first quality. An early and very rich year.
- 1635, Little wine and bad. The flowering suffered from the rain.
- 1636, Excellent wine and plenty enough
- 1637, Little wine but good.
- 1638, Little wine but good ; spring and Autumn cold.
- 1639, Grapes plenty ; wine sour ; spring late ; summer wet. The cold began in September.
- 1641, Wine scarce and bad.
- 1642, Little wine but good. Heavy rains during the flowering.
- 1643, Little wine, middling quality ; mild winter ; frost in spring and Autumn.
- 1644, Few grapes, wine good ; very cold winter, also the spring.
- 1645, Wine excellent and abundant ; a fertile year.
- 1646, Little wine but good ; rigorous winter ; cold spring.
- 1647, Wine good and abundant ; plenty of fruits and grain.

- 1648, Few grapes ; wine sour ; the rains injured the flowering of the vines ; *almost no summer* ; a very severe storm on the 11th of June ; considerable hail.
- 1649, Wine scarce ; sour ; an unfavourable year ; but grain enough ; January extraordinarily mild ; white frost in May and heavy hail in summer.
- 1650, Little wine but good.
- 1651, Wine enough but middling ; heavy snows ; late spring ; favourable summer ; a wet Autumn.
- 1652, Wine abundant and good ; a fertile year, a good early vintage.
- 1653, The wine extraordinary for quality and quantity. The crop generally good.
- 1654, The like.
- 1655, Wine of extraordinary quality ; early season, vintage about the middle of September.
- 1656, Abundance of grapes, wine but middling ; January rigorous, spring fine, June rainy ; but a general abundance.
- 1657, Grapes plenty, wine bad ; a wet cold year. The grapes rotted on the vines.
- 1658, Wine scarce, sour ; winter severe, spring wet and cold.
- 1659, Wine plenty enough, quality middling. The summer wet, hail, very cold weather.
- 1660, Great abundance of wine and very good ; a hot summer and a very cold winter.
- 1661, Wine plenty, middling quality ; abundance of grain.
- 1662, Very few grapes and sour.
- 1663, Little wine and bad.
- 1664, Plenty of grapes and bad wine.
- 1665, Wine plenty, middling quality ; winter mild, summer rainy.
- 1666, Wine enough and very good ; extraordinary heat.
- 1667, Little wine, quality middling ; summer hot ; fertility.
- 1668, Wine plenty, but of middling quality ; winter severe, summer wet.
- 1669, Wine abundant and excellent ; a very hot and dry summer.
- 1670, do but a very long winter.
- 1671, Wine enough, but of middling quality.
- 1672, Plenty of sour grapes ; cold and wet summer.
- 1673, Same as 1671.

- 1674, Few grapes, the wines exquisite ; dry weather.
- 1675, Wine scarce and sour ; season late.
- 1676, Plenty of good wine ; foggy spring, very warm summer.
- 1677, Wine plenty and sour.
- 1678, Wine abundant and good ; a fertile year.
- 1679, Grapes plenty and sour wine.
- 1680, Wine abundant and good ; early autumn.
- 1681, Few grapes, but good wine.
- 1682, Grapes in abundance and sour, began to rot about the end of August.
- 1683, Much wine and good.
- 1684, Wine plenty enough ; portable. The winter in England was the most severe in the memory of man.
- 1685, Wine scarce and sour.
- 1686, Grapes few, but the wine good.
- 1687, Plenty of middling wine.
- 1688, Wine abundant and good.
- 1689, Little wine, excellent ; severe winter, early and fertile year.
- 1690, Much middling wine ; very stormy summer.
- 1691, Little wine and good.
- 1692, do and sour ; a sterile year.
- 1693, Little wine, good ; a very cold spring.
- 1694, Wine enough of a middling quality ; a wet summer.
- 1695, The like.
- 1696, Wine scarce and middling.
- 1697, Wine enough, but a wet summer and a cold autumn.
- 1698, The like.
- 1699, Little wine and good ; spring late and wet, great heat in August.
- 1700, Little wine ; summer very hot.

Translated February 1850, by H. MEIGS, Secretary of the Farmers' Club of the American Institute.

FARMERS' CLUB.

REPORTS OF MEETINGS.

May 15, 1849.

SAMUEL ALLEN, in the chair. HENRY MEIGS, Secretary.

Mr. Meigs—said that the subject for the day was of very great importance: The best mode of raising seeds, preserving and planting. We are apt to be too negligent in this matter, forgetting that the like rules which produce the best blood, and every good quality in our domestic animals, are to be observed in the vegetable kingdom. No part of animated nature more distinctly announces origin, care or quality, than the vegetable kingdom. The same plant, under different treatment from its seed to its ultimate development, can be made (as in dwarf trees) three inches high or one hundred feet high. The Chinese dwarf tree artist was full of enthusiasm in viewing the dwarf tree, and foreseeing that at one hundred years of age, it would but be a *few inches high*. In size, but more in quantity, and yet more in quality, by careful selection of seed, can man grow delicious wheat easily to fifty bushels per acre, or by want of knowledge or care be condemned to reap a scattered crop of poor wheat of less than ten bushels per acre. And, according to the late experiment tried most faithfully in an experimental garden near Paris, the wheat crop depends most seriously upon the depth at which the seed is planted. It was decided, past all doubt, that about two inches was the right depth for best and largest yield; so that we are able to assert positively that if all the seed on an acre is placed at that depth, the greatest possible yield is to be had. Select perfect seeds from the most perfect plants in continual succession, and we attain the highest value of crops. It is also in the infancy of a plant that its ultimate value is to be established. It is a law of both vegetable and animal life. We are

too apt to overlook this, and trust to the constant effort of animals and vegetables to do their best ; but perpetual experience returns upon us the fact, that as is the infancy—strong or weak—so is the maturity.

President TALLMADGE presented to the club seeds of water melon grown here from seeds obtained from melons grown at Smyrna, and he remarked that these melons were large, round, very solid, red cores, and exceedingly fine. They were distributed among the members. The President said that he was delighted to have the subject of seeds under discussion here, and wished that the institute would collect and publish a carefully condensed set of instructions on the whole subject, for practical use. We find that plans are, as a general rule, confined to certain positions, as relates not only to climate, but to valley and mountain—to zones, and to all those influential causes connected with their nature. Botanists are performing the great work of investigation on their part. We are already acquainted with many of the diversities in vegetable growth on our globe. We are told that not only do these diversities exist in the various parts of our northern hemisphere, but also that very marked differences are found between the plants of our hemisphere and those of the southern, and that the small fruits flourish in this—they do not in the southern ; and it is said by some observers, that the diseases of our hemisphere very rarely prevail in the other ; that in tropical regions trees incline to deep penetration of the soil by means of large roots, in order to be able to sustain the severe heats and droughts, and that a general difference of habit in plants is found between the two hemispheres. Our own position is peculiarly happy, receiving, as it does, the fruits and products of every country. Salmon from the cool waters of the north meet in our markets the green peas of the Southern states, and together, grace our festive board early in the season, and ours follow in succession. We are bound to learn and to teach wisdom on the subject of these blessings of the vegetable kingdom. The depth at which seed should be placed is very important, and it is also necessary to be careful in the transplanting of trees, so that they be not too deeply in the earth, nor yet too shallow. Either error ruins the tree or the vine—the effects of too deep or too shallow planting are loss of time and money. The soil, too, must be carefully considered. Avoid a cold, wet clay and a porous sandy soil ; we must make the soil what it

ought to be before we plant, or we had as well not plant at all. Undoubtedly, therefore, we want the aid of a sound chemical examination, in many cases, before we undertake to establish orchards or annual crops of vegetables. A life is wasted in vain expectations of vegetable wealth from a soil not having the chemical components required by our trees, plants, and fruits.

Mr. Meigs reminded the club that in a close clay soil—one of the best amendments—one of necessity was sand, as much or more than manure, even seashore sand.

Mr. Holmes, said that the latter probably contained shelly matter like snail.

Mr. Meigs.—The sand makes the soil porous. That a singular result was found on the farm of Mr. Maxwell, at Nyack, on our Hudson river. In order to have clean hard walks in the garden, the former proprietor covered them with disintegrated sand stone, (called at the quarry Kellis,) and that instead of a fine freestone path, free of weeds, he had a growth of white clover as thick as the hair on a man's head.

Judge Van Wyck said that similar results were had from clay and snail soils.

Mr. Ross remarked that clay was very favorable to the growth of white clover, and that lime was favorable to that of the red top.

The Chairman.—I cleared a field of two hundred acres of forest in Erie county, and white clover sprung up all over it; and last year I saw on the banks of the Delaware a field which the owner, finding to be barren, let the fresh river water upon it, and kept it on for five years; he then, at low tide, run it off, and when it was dry enough to work, he found from one to three feet of deposit upon it. He sowed timothy grass on it, which covered about two-thirds of it, while on the rest of it there came a rich spontaneous growth of green grass, not known in that quarter. Where did those seeds come from?

Judge Van Wyck.—When plaster of Paris was first put upon our fields, the white clover went out, and the red top clover was planted in its place. Clover is apt to run out in three years—sometimes will continue seven years. Timothy and its kindred grasses sometimes lasts fifteen years on rich lands, managed with great care. Blue grass would be a great acquisition to our farms.

Chairman.—We now get that seed direct from Kentucky, and much of it is now sold to our farmers.

Judge Van Wyck.—Blue grass is very fattening to cattle in summer, and in winter serves them as fodder lying on the ground in Kentucky, its native locality.

Chairman.—It is mostly valuable for lawns and pastures.

Mr. Meigs read from the *Journal of Agriculture*, and the transactions of the Highland and Agricultural Society of Scotland of March 1849, the following :

The plant by Schleiden—"What does man live upon?" He says that at one of the larger lunatic asylums, he found a patient crouching down by the stove, watching with close attention a saucepan, the contents of which he was carefully stirring. At the noise of my entrance, he whispered—"Hush, hush! don't disturb my little pigs—they will be ready directly. You see here I have black puddings, pig's bones and bristles, in the saucepan—everything that is necessary; we only want the vital warmth, and the young pig will be ready made again." In answer to the question what does man live upon, our author quotes largely from Liebig, who certainly was the first to point out that bodies of precisely similar chemical composition existed both in the animal and vegetable world, and which are most probably transferred from one to another unaltered.* The whole of the substances used by man for food may be divided into two groups—first, those containing nitrogen; second, those without nitrogen. The first are called the materials for nutrition, the second Liebig has very properly named *materials for respiration*. These are found combin-

*Raffinesque said very much the same thing in 1815 at Palermo.—[H. MEIGS.

ed in the cereals and in milk. The first exists in the largest degree in animal flesh, and the latter in gum, sugar, starch, spirits, wine, beer, and lastly, the various kinds of fat. But perhaps the most singular facts connected with the question—"What does man live upon?" are bearing upon tea and coffee, which are now amongst the necessities of civilized life, as the Paraguay tea is to the South American. In all these substances chemistry has discovered precisely the same substance. And finally chemistry has brought to light the fact, that all those substances used by man as food are compounds of the four simple substances—oxygen, carbon, hydrogen and nitrogen. In the second lecture on this subject, Schleiden alludes to the opinion thus broached by Liebig, that the vegetable world lives upon the carbon, ammonia, and water of the atmosphere; and very properly asks—if this be the case, of what use is manure? Liebig's idea was, that it was to supply the mineral part of the plant alone, and that the farmer would get as much benefit if he burnt manure heaps, and strewed the land with the ashes. With this view he sought to revolutionize our whole agricultural system, by the recommendation of a mineral manure he has discovered, for the preparation of which he has taken out a patent in England, and sold it to Messrs. Muspratt & Co. His aim is to furnish to every soil and plant a proper compost of those mineral substances which the plant requires and the soil is deficient in, and in such a peculiar state of combination, that the substances shall be soluble enough to be taken up by the plants, and yet not so readily soluble that the rain can wash away any considerable quantity.

Every farmer who has tried Liebig's manure is aware of its failure; and we think that this has been principally caused by his want of attention to the difference of climate between Germany and England. In the clear sunshine of the former it may be possible to dispense with ammonia in the manure, but certainly not in England or Scotland.

We regret extremely that Liebig should have so publicly pledged himself to certain views, as we have no doubt but that his failure has damaged the cause of scientific agriculture, and thrown it back by several years.

Mr. Meigs read from the same work the list of premiums offered by the Highland Society for the year 1849, and subsequent years. These seem worth attention :

Deep tillage.—For approved report thereon—gold medal or ten sovereigns.

Liquid Manure.—Do. do.

Manures.—Fifty sovereigns ; the report to be lodged by 1st November, 1849.

Trifolium Hybridum, or Alsiche clover.—Report on—gold medal, ten sovereigns.

Clovers and grasses for two or three year's pasture.—Gold medal, or ten sovereigns ; report to be lodged by 1st Nov. 1850.

Comparative productiveness, &c. of different varieties of the Cereal Grains.—the gold medal, or five sovereigns ; by 1st Nov. 1849.

Improved Varieties of Agricultural Plants.—Gold medal, or ten sovereigns ; by 1st Nov. 1849.

Flax.—Twenty sovereigns ; report by 1st Nov. 1849.

Comparative value of different Plants as Food.—Several premiums of gold medal and five sovereigns.

Vegetable productions of India, China, America, &c.—For approved report on the hardy and useful herbaceous plants, including grains and grasses of China, the islands of the Eastern Archipelago ; the Himalaya country ; the Falkland Islands and South Sea Islands ; California ; the high North Western Districts of America—gold medal, or ten sovereigns ; by 1st Nov. 1849.

Tussac Grass.—The gold medal ; by 1st Nov. 1849.

Feeding of Stock.—Twenty sovereigns ; by 1st Nov. 1849.

Use of the Spade.—Premium one pound five shillings and under.

The whole list of premiums in every department of farming industry occupies some forty pages.

Judge Van Wyck.—Some of Liebig's theories have been tried in experimental farms, and been found to be wrong. They now rely in Europe, in a great measure, on the manure of the barn yard ; nor is

there any room for doubt as to the safety of that reliance. Liebig's "fertilizer," has been found good on good soil, but not so on the poor soil. We cannot afford here to use much imported manure. We ought to go thoroughly into the subject of seeds, for it is one of very great importance.

Chairman.—A friend of mine has planted Italian wheat for three years; he sowed in fields where there was no danger of its mixing with other grain; he selected the largest seeds from the largest heads, and obtained thus a better and more productive crop. The like care was taken by Baden as to Indian corn with great success.

Mr. Meigs.—I raised corn from Baden's seed, and the stalks were, many of them, 15 to 16 feet high, and bore on the average six ears each. One gave 13 very imperfect ears.

John W. M'Intyre presented seeds of the Spanish winter water melon, grown in New Jersey.

Corn from the South-west part of Indiana, of the finest gourd seed kind, was presented.

Mr. Wells, of Brooklyn, remarked that an insect called rose bug had of late years appeared in many places in very large numbers, destroying grapes and other fruits. He proposes that the means of arresting this evil be made the subject of consideration at the next club, as this destroying little bug appears in June.

Adopted unanimously; and it was desired by the club that full notice be given of the alarming evil to be feared from the insect this summer and in future.

The club adjourned.

H. MEIGS, *Secretary*.

September 4, 1849.

R. T. UNDERHILL, of Croton Point, in the chair. HENRY MEIGS, Secretary.

The secretary read the following translation by him, from the recent numbers of the *Annales De La Societe Centrale De France*, Paris.

Historical Notice of the Litchi of China and its Culture, by Mons. Breon.

The *Euphoria Litchi* is originally from China, and is one of the large forest trees of that Empire. It belong to the family of Sapindaceæ. It produces hardly any fruit, and those are about the size of pigeon's eggs. The seed is surrounded by a little white pulp not much esteemed. But the Chinese gardeners have, by means of grafting by approach, and especially by Marcottes, [Layers,] and by good culture, succeeded in quadrupling the size of the fruit, in producing dwarf trees extremely small, and in obtaining from it one of the best and most esteemed fruits in the world. It is now cultivated by the Chinese in their smallest gardens; and those who have no gardens, plant it in boxes, and obtain an abundance of fruit.

The Litchi was introduced into the Isle of France in 1770, by the estimable Mr. Poivre, then superintendant of the Isles of France and Bourbon. Mr. Cere, the Botanical Gardener of the Isle of France, multiplied those trees. Their fruit became as highly esteemed by the colonists as in China. The Litchi, grown from the Marcotte (Layer,) has a very fine pyramidal form, grows to about twenty or twenty five feet high, many of them much taller, whose fruit becomes thus inferior. The fruit of the Litchi is spherical in form, covered with a leathery bark, and is full of tubercles. When ripe, it is of a scarlet red, and as large as a large nut. Under the skin is a white pulp, which has the taste and odor of the Muscat Raisin, of the Peach and of the Strawberry, within this pulp is a common sized nut, globular in form, and smooth exterior. Some of these fruits have abortive nuts, and are more esteemed than the rest for their superior taste. They grow in bunches like grapes, and each branch has commonly on it fifty fruits; but sometimes one and even two hundred.

The appearance of the Litchi, with its bunches of scarlet fruit and its fine green foliage, is beautiful indeed. The trees from the Marcottes [Layers,] at from one to two feet high, produce the fruit in four months after the Marcotting—many of the Litchis from seed, large trees of sixty years of age, give no fruit.

December 18th, 1849.

Dr. UNDERHILL of Croton Point, in the chair. HENRY MEIGS, Sec'y.

The Secretary read the following translations from the publications recently received by the Institute from France.

Two crops of Cauliflowers from the same stems.—Cut the Cauliflowers so as to leave a portion of the flower at the bottom ; cover the cut part with dry sand and presently the flower which has been left will develop a new cauliflower—an entire new head!

Disa Grandiflora of Table Mountain, Cape of Good Hope.—Mr. Bunbury of London examined the plain constituting that *table*. The general level is well known as very remarkable, but it presents some inequalities, and among them some swamps in which the *Disa* is found. He says of it : “In my opinion it is one of the most magnificent flowers in creation ”

The *table* is a narrow band about two miles long, abrupt on all sides stretching from south-east to north-west. The table is nearly 3700 feet above the level of the sea.

Revue Horticole, September, 1849.

Loiseleur Deslongchamps, recently deceased, furnished for the *Revue* lately, the following interesting remarks on gigantic grape vines.

I saw on the farm of a man near my country seat a few years ago, a grape vine which covered the branches of ten or twelve large Prune trees. In good years this vine yields one hundred gallons of good

[Assembly, No. 199.]

wine. At St. Cloud, in the garden of Mr. Morel de Vindc, two leagues from Paris, I saw a trellis of black grapes presenting a front of surface of 1500 metres.

In the Royal Park at Fontainebleau, there is an old magnificent grape vine of the same kind as the one at Hampton Court. This vine dates from the time of Francis First.

There is a remarkable vine at No. 15 Marais Street, Paris, planted by Racine the celebrated dramatic poet, some 160 years ago. In good seasons this bears 1200 bunches.

The grape vine at Hampton Court was there in the time of George the Third. It bears in favourable years four thousand bunches of grapes. One day when actors at Drury Lane Theatre had pleased George 3rd, one of them asked from the King a few dozen bunches of those grapes. The King said they might have a hundred dozen bunches if his gardener could find so many on the vine. The gardener upon this, told his majesty that he could cut off the hundred dozen bunches, and as many more besides, without stripping the vine of all its fruit. D'Arlincourt says, that vine is one hundred and ten feet long, and bears usually twelve hundred pounds of grapes, and in 1842 bore fifteen hundred pounds of them.

There are many grape vines in Europe as large as a man's body, and reaching to the tops of trees, and good bearers. The vines of a similar size in North America generally do not yield fruit.

Revue Horticole, Paris.

Aubergine (Solanum Melongena).—This annual plant, now so extensively grown in our southern provinces, has been cultivated but a few years in Auvergne. It begins to spread in the vegetable gardens, and it has a just right to do so, for its abundant product, which continues from July to the frosts of the fall. And it may be preserved if under shelter till January. The Aubergine must be sowed in a hot bed in February, March or April, as you desire fruit more or less early. The plants are at a proper time set out in open air in some warm exposure, in a very rich light soil or humus; must be often and copiously

watered, and it will give fruit in proportion to the heat, the manure and the watering you give it. It much resembles in its growth and cultivation the *Tomato*. The fruit for table should be picked before it is quite ripe. Plants for seed should be left, and seeds taken only from the finest largest fruits. The seed degenerates soon, and ought to be renewed from the south of France.

A few years ago there was introduced here from China, a variety of it bearing white fruit, smaller than the violet colored, but preferable for the delicacy of its taste and flesh.

Annales De La Société Centrale D'Horticulture De France.

DE CANDOLLE.—*Author of Flore Francaise*—5 volumes Octavo, 3d Edition in 1805. *Of Vegetable Physiology* in 3 volumes Octavo, in 1832.—Pyramus de Candolle was born in Geneva, came to France while young, soon made himself remarkable as an able Botanist. He was aided in his studies by the deserved friendship of Baron Delessert. After many important publications on the subject of vegetables, and after having filled for many years the place of Professor of Botany at Montpellier, he returned to Geneva, where he remained a Professor of Botany, until his death in December, 1841.

Mons. Pyramus de Candolle held for many years, the sceptre of descriptive and historical botany. From Geneva, he dictated laws which were received as so many oracles, by the majority of European Botanists. According to the doctrine of de Candolle, Botany had hitherto remained a useless science to the human race. Those learned men who had cultivated that science, had occupied themselves only with those differences which exist between plants, in augmenting the number of their genera and species, and not at all with their application to the wants of men. Their science was absolutely sterile, unless to Society, and common sense was astonished always at beholding so many grave and learned Botanists, who never considered at all the advantages which plants offered to human support, to the arts, to industry or to commerce. Mons. de Candolle deserved well of all sensible men by his division of the Science of Vegetable into organic Botany, descriptive, and applied to some use!

ALGERIA.—*Notes on the products of the Central Nursery of Algeria which were exhibited at the National Fair in Paris, June and July, 1849.*

Oleaginous seeds.—Algeria is able to supply oil to the whole northern surface of our hemisphere. Beside the olive which grows spontaneously and which forms one of the principal riches of the country, there are many oleaginous plants, very rich in oil.

The Oriental or Indian *Sesame*, which yields per *Hectare* when properly irrigated, about 4,000 pounds weight of oil. The *Arachido*, the *Cacahuetes* of the Spaniards, which yields, when properly irrigated, 6,000 pounds weight of oil, &c., &c.

Graminaceæ-Grasses.—An order of Endogenous plants, grow by additions to the inside of their stems. Corn and grain of all sorts, bamboo, sugar cane, reeds, &c. Two valuable works on grasses should be consulted, The *Agrostographia* by Kunth, and Sinclair's *Hortus Graminaceæ* on pasture grasses.

Lindley, the highest botanical authority, in his *Vegetable Kingdom*, makes the *Graminaceæ*, contain two hundred and ninety-one genera, with three thousand eight hundred species.

It is remarkable that the native country of wheat, oats, barley, and rye, should be unknown. This had led some persons to think that all our cereal plants are artificial productions, accidentally obtained but retaining their habits which have become fixed in the course of ages.

The cuticle of these plants contains a large proportion of *Silex*. Masses of it are found melted in burnt heaps of straw or other grasses. In the joints of some grasses there is found a perfect silicious deposite, especially in a jungle grass. Wheat straw may be melted by a blow pipe into a colorless glass. Barley straw melts into a topaz colored glass. In the joints of bamboo, a singular deposite of *silex* is formed, called in India *Tabashea*, in which there are also a little lime and vegetable matter. Sulphur also exists in combination with

different bases in wheat, barley, rye, oats, Indian corn, millet and rice.

Raspail, (the modern French revolutionist,) in his memoir on the structure of grasses, hazards a theory that the 'midrib of the bracts of grasses is an axis of development in cohesion with the bracts, and that when it separates as in *Phleum*, *Bromus*, or *Coniphorus*, it is attempting to revert to the functions of ulterior development for which it is more especially destined.

Dr. Underhill remarked, in reference to extensive grape-vines, that the natural tendency of great growth of the vine was to lessen the value of the wine, the greater supply of sap dilutes the juices too much to produce the best wine.

Our regular subjects are now in order (viz.) The grasses, hay, wheat and its culture.

Judge Van Wyck.—A carpet of grass protects and enriches the soil. In the northern section of country the most extensive use is made of timothy and clover, the red top and the white, the latter being indigenous. The grasses require a rich soil as well as the grains. Most farmers suppose that the grasses will grow continually without culture, but they cannot expect a proper supply to feed their stock, unless they maintain the soil in as good condition as they must to produce grain. The best mode of planting timothy and clover, is to plant the first in the fall of the year, and the clover in spring. Clover has this superiority over other grasses, that cattle cannot eat so much of it but that its roots and many of its leaves remain for the fertilizing of the land. Hay ought to be made of clover and grasses when they are in flower; their rich juices are then diffused throughout the plants, before they ascend to form the seeds. After the the seeds are ripe, the plants are rendered inferior for making hay. Farmers however are beginning to cut them earlier than they have formerly done. Some let timothy develope its flowers more fully, and begin to fall. But on this point there is a diversity of opinion as in some others, in regard to hay making.

Mr. Townsend, of Astoria. — I never let my clover or grass lay long exposed to the heat of the sun, and I make good hay. I do not believe that clover enriches land by a long succession of crops. No, I turn in green clover with the plow, and always find my wheat and my garden vegetables thrive after it. I harrow my wheat well, and I think this helps to destroy the fly. One day my horses ran away with my harrow across a wheat field. I supposed they had done mischief, but when the crop grew up, the road the horses had made over the field was the finest growth on it. I prefer to cut timothy *on the day the blow drops off*. I cut and cure it as soon as possible. I find that blue grass does well on strong soil, gives a great burthen, never wants replenishing, never wears out. It is our natural blue grass, perhaps not exactly like the Kentucky sort. I began many years ago to manure my farm on Long Island. I paid freely for barn and stable manure. After a while I found out that by taking off the peat or muck from the surface of my meadows, underneath it a smooth, fine earth which I put on my land, and have continually made it better and better. Most farms contain their own materials for manure. I let my hogs trample the manure well.

Judge Van Wyck.—I have read a passage in the *Genesee Farmer*, stating absolutely, that it was best not to cut till the seeds of the grasses were ripe, perhaps excepting clover, and all other late cutting, and especially timothy; that the weight of hay is increased by it and the land left in better condition after the crop, and the young grass growing up sooner and richer for it. This is contrary to reason, for when the seeds ripen, soil is proportionally impoverished, and the stems dry when cut, must delay the circulating of the sap and the starting of the young grass.

Mr. Pell, of Pelham.—My plan for the past five years, with regard to cutting grass for hay, has been to commence cutting down clover when about two-thirds of the tops have turned brown, and timothy when the bloom begins to fall, and only cut so much in the morning as may be taken in before night. It is then salted with about one bushel of fine salt to the ton; the effect of the salt is to draw out the moisture which goes off by evaporation, and the pores take in the salt, the hay thus becomes cured with all its chemical ingredients, as well as

coloring matter, and is much relished by stock. The grass will only take up a certain portion of the salt; the balance over and above the requisite quantity finds its way undissolved to the bottom of the stack or barn. Consequently it matters little how much salt you use. By the old plan, or in other words, that usually adopted by farmers, the hay is cut in the morning, raked into wind-rows in the afternoon, cocked the next day, in which state it may remain one week before an opportunity occurs to take it in; and I have frequently known farmers to leave it out two weeks. Another error committed by many farmers, is sparse sowing; the usual quantity of timothy and clover sown is so small, that it frequently requires two years to litter and cover the field, and not unfrequently never covers, as the weeds are allowed an opportunity of spreading, and taking possession of the field. If they were to sow half a bushel of timothy seed and one bushel of clover, the cost would be but \$5.45 per acre, the ground would be covered with valuable seeds, weeds would not be apt to grow, and the yield the second year, would be $2\frac{1}{2}$ tons, worth \$25. Wheat is usually cut too late in the season.

Edward L. Yeomans.—The legitimate function of the vegetable is to construct, while that of the animal is to destroy. The grand question is, how we can obtain the best and greatest quantity. Inflorescence commences combustion, and increased heat of two or three degrees is at that period sensible in the plant. In a great field of wheat, how great is the combustion? I think that this state of the plant indicates the right time for cutting.

Dr. Underhill.—Lucerne is a beautiful crop when well managed; it should be in drills wide enough for the man to pass. It may be cut four times a year, and if not cut, it grows too large in the stem.

Judge Van Wyck.—The Mediterranean wheat, has been considerably raised among us. It is found to make a dark colored flour; it is sweet, and is remarked to grow whiter every year, grows well and not injured by insects.

Mr. Townsend.—I have lately sowed four bushels of it.

Lyman Root, of Ohio, exhibited before the club a small machine for paring, coring and slicing apples. This little machine which can be worked by a child, was invented by Julius Weed of Paynesville, Lake county, Ohio, and its price is five dollars.

General Chandler called the attention of the club to an invitation to the public, from Mr. Devoe, to examine a cow and her calf now ready for slaughter.

Major Handcock presented the following extract from an Irish newspaper—the “Cork Reporter:”

The Forbes Potato.—Most of the inhabitants of this country—particularly those of the county Cork—will not fail to remember the visit of Captain Forbes, in the “Jamestown,” or the cause of his visit. Captain Forbes, during his sojourn in this country, presented a few American Potatoes to Major Beamish—which the gallant Major had planted in his garden—and to which, in commemoration of Captain Forbes’ visit, he gave the name of the “Forbes potato.” In the autumn of 1847, Major Beamish made a present of three of the potatoes in question, to Captain Thomas, of Cosheen, who planted them in his garden. In 1848, he had thirty-six potatoes large and small. Those Captain Thomas planted again in February, 1849—whole—and from them, in this month, October, 1849, he had 43 lbs; the three potatoes in two years, having yielded a great produce both in number, size and weight. They are of two distinct kinds—the long reds—and round purples, and quite sound and free from disease, as will be perceived by samples which may be seen at this office. It will be a singular coincidence, remarks a correspondent, if, in the order of Providence, the visit of Captain Forbes in the Jamestown “should be the means of restoring the poor man’s food,” by the introduction a second time to this country of the potato from America.

Subject adopted for next meeting, Manures, and economy in their preservation.

Adjourned.

H. MEIGS, *Secretary.*

February 5th, 1850.

Present thirty members. Professors JOHNSTON of England, and ANTISELL of Ireland, attended the meeting.

Judge ROBT. S. LIVINGSTON in the chair. HENRY MEIGS, Sec'y.

The Secretary read his translations from the books presented to the Institute by Mons. Alexandre Vattermare, and the *Revue Scientifique*, Paris, as follows :

From the *Revue Scientifique*, Paris.

Analysis of the Excrements of Cows.

When inunerated the constituents are,

Silex	62.54
Potash	2.91
Soda	0.98
Marine Salt.....	0.23
Phosphate of iron.....	8.93
Lime	5.71
Magnesia.....	11.47
Phosphoric acid.....	4.76
Sulphuric acid.....	1.77
	<hr/>
	99.30

Excrement of Hogs.

Silex	13.19
Potash.....	3.60
Soda	3.44
Marine salt.....	0.14
Phosphate of iron.....	3.98
Lime.....	18.15
Magnesia.....	5.45
Phosphoric acid.....	7.52
Sulphuric acid.....	2.64
	<hr/>
	94.64

With traces of manganese and carbonic acid.

Excrement of Sheep.

Silex	50.11
Potash	5.32
Soda	3.28
Marine salt.....	0.14
Phosphate of iron.....	3.98
Lime.....	18.15
Magnesia.....	5.45
Phosphoric acid.....	7.52
Sulphuric acid.....	2.69
	<hr/>
	99.64

And traces of manganese and carbonic acid.

Excrement of Horses.

Silex.....	62.40
Potash	11.30
oda	1.98
Marine salt.....	0.03
Phosphate of iron.....	2.73
Lime	4.63
Oxyde of manganese.....	2.13
Phosphoric acid.....	8.93
Sulphuric acid.....	1.83
	<hr/>
	99.80

Of the ashes of Excrement of

	Cows.	Hogs.	Sheep.	Horses.
Parts soluble in water	5.84	9.65	17.29	3.16
Partssoluble in Hydro-				
chloric acid	32.21	18.70	34.54	22.59
Parts in soluble in do.	61.95	71.65	48.17	74.25

La Normandie Agricole, 1848.

Statistics of Agricultural Wealth.—In order better to appreciate the Agricultural wealth of France, and the progress which it has made in our days, we have searched among the ancient State papers and writings of economists, &c., and we have gained the following estimates, (viz.)

Epoch.	Population.	Value of Products.	per Inhabitant.
1700,	19,600,000	1,500,000,000	77
1760,	21,000,000	1,555,750,000	73
1788,	24,000,000	1,034,333,000	85
1814,	30,000,000	3,356,971,000	118
1840,	43,540,000	6,022,169,000	224
Now with the domestic animals,		7,502,905,000	224

A comparison of these five epochs leads us to a knowledge of the fact that the gross amount of our annual revenue from our Agriculture is now double that during the Empire, and that in *only one generation* it has tripled the revenue given by the whole territory of France under *Louis XVI*, before the benefits of the revolution, and finally that it is quadruple that of the Agricultural production of the age of *Louis XIV*. There is not in history another example of such an Agricultural progress and the acquisition of such great wealth, the fruit of labour, intelligence and public liberty.

Royal Studs in 1848.—The number of Stallions of pure blood now in these studs is 322. They are divided among the several establishments. Twelve stallions are in the pin stud, viz. Béranger, Bolero, Eylau, Friedland, Governor, The Juggler, Oak Stick, Pole Cat, Prince Caradoc, Royal Oak, Sylvio and Tipple Cider.

Ten stallions are at *St. Lo*, viz. Adolphus, Comminges, Don Quixotte, Great Wonder (Croesus) Jocko, Marengo, Paul de Kock, Richard Y Snail, and Ulysses.

Among the 322 stallions are ten newly brought from England by Mr. De Laplace. The Stud Journal says, that these are rich and precious, and that the English saw with regret that some of these were taken away from them.

These horses have cost 52,800 francs, or about 10,000 francs each. Sting cost more than the rest, viz. 15000 francs.

The number of horses imported in one year is 28000.

Consumption of Animals in Paris in 1847.—Oxen 82,519, Cows 24,900, Calves 503,113, Sheep 239, Goats. The abattoirs of Paris, (slaughter houses) furnished 121,000,000 pounds of meat,—7,500,000 pounds of tallow. Besides the meat from the abattoirs, there were brought into Paris about 12,000,000 pounds of meat. So that Paris with 1,000,000 of people, consumed on an average about 136 pounds of meat per soul.

The pork is used by the lower classes chiefly, and the amount in 1847 was about 11,000,000 pounds.

Russia has founded studs in the greater portion of her departments, on the same plan as those of France. The St. Petersburg Journal says, that the number of mares fecundated by the Government stallions in three years amounts to 74,244 ; more stallions are called for every where. Many associations have been formed by individuals, and the whole number of studs of the government and of individuals is now 2,144.

Mr. Carter.—The regular subject for the day, is the propriety of providing suitable lands on which poor immigrants can be employed until they can provide for themselves farms on our cheap lands in the interior. I also include the poor already among us. In hopes that some society would undertake such a plan, I have proposed this discussion. A farm being provided, then an office in this city, where all the names of such persons shall be registered, and when deemed proper, tickets given them for the farm. The poor immigrants are too apt to commence here by begging, their spirits are soon broken so that they become unable to reach the country or to labor like men. The State is interested in this matter, and should prepare the way for the beneficial introduction into our country of the great stream of immigration which is yearly swelling in amount.

Mr. Fleet—deemed it to be a subject of high importance as well for the present population as for that which is flowing in.

Professor Antisell.—I sketched a plan about a year ago, which appeared in a newspaper called *The Nation*; it is as follows :

Establish an *Emigrants Home*, available to all classes of laborers, who on arrival can go to work as farmers, tailors, shoemakers, &c., and let their children be put to school; the general management might be left to a limited number of city residents who could see the institution carried out properly. The various sections of the American Institute now forming, might materially aid by its coöperation by holding public meetings, and bringing this subject prominently before the country; such an office here, would be applied to by immigrants on their arrival, and they could be provided with tickets or orders to convey them by nearest routes to the institution, where they can find the work best suited to them within doors or out on the farm. Such an asylum, managed with economy and carried out with the necessary spirit, would form the brightest ornament among the benevolent institutions of the State of New-York.

Mr. Carter.—This State has large tracts of land, not equal to the richest certainly, but lands now covered with thick forests—lands where industry can make an excellent home. Fifty thousand acres of it have been recently offered for sale at *ten cents an acre* by the Land Commissioners of our State, at Albany. This land is in Herkimer county, and one half of it is tillable land.

Judge Van Wyck remarked that the rich lands belonging to the Union presented greater attractions to the settler, the number of immigrants is already very great. This subject has drawn the attention of the mayor, who has stated the case in strong and just points of view.

Chairman.—It would be best to appoint a committee to examine this subject and report to our next meeting.

Mr. Carter.—I purposed to make that motion and now make it.—a committee of three.

Judge Van Wyck.—Of five.—carried.

Chairman. appointed Messrs. Carter, Fleet, Antisell, Van Wyck, and Lewis G. Morris.

Mr. Morris.—My time will be too much occupied to enable me to do my duty, and I must therefore decline.

The chairman, then substituted Mr. Elliot.

Mr Meigs observed, that the lands in our immediate vicinity to a great amount, required all the hard work which could be found for a long time to come. The removal of boulders, breaking them up and forming durable fences, at the same time thus making the land arable; such work can be done by able bodied men who do not understand farming or any mechanic art.

Mr. Pike had employed immigrants on his farm, paid high wages, afforded every comfort, but he found it a losing business; they must have too high wages and little work; he had give double and even treble wages in vain. As to the stone walls spoken of by our secretary, they don't last so very long, for I have already built some of mine twice.

Mr. Fleet.—I too have employed immigrants on my farm, forty miles in the interior, on the bank of the Hudson. They were not fond of work, left me and walked the 40 miles to our city, where I have found them lounging about the intelligence offices.

Judge Van Wyck, thought that land owners who wanted laborers, would find them readily when they desired, in this great mart. The complaint against bad workmen, made by Mr. Pike, has a great deal of truth in it. I have however employed some of them on my farm in New Jersey, and I do not desire to have any better.

Lewis G. Morris.—I do not believe that our sterile lands would pay under the plan proposed. The best way is, probably to put our farmers in the way of easily obtaining the laborers he wants.

W. Bowman.—Plans of the sort proposed will be proclaimed in newspapers to the old world and new temptations to immigration held out. Let it alone, they will come fast enough on their own plans. You need not open the door and hold it open.

M. Meigs.—I have held the door open for fifty years. I learned early the policy of that wise king of Persia who declared that his wealth, power and glory did not consist in lands or property but in men.

Judge Van Wyck.—No doubt, we shall have plenty of people coming in among us, and we owe it to ourselves as well as to them to render it as agreeable and profitable as possible to both parties.

Mr. L. G. Morris.—I propose as subject for next meeting, "Sub-soiling, deep ploughing and under draining." Adopted.

Adj. to 3d Tuesday of February, at noon.

M. MEIGS, *Sec'y.*

January 15th, 1850.

R. L. PELL of Pelham, in the chair. HENRY MEIGS, *Sec'y.*

The Secretary read the following translations made by him, from the *Normandie Agricole*, one of the valuable works presented to the Institute by Mons. Alexandre Vattemare :

An old military veterinary surgeon of our army, Mons. Mariot, has taken great pains in the poultry line. He has ascertained the value of it to France. It as follows :

The 86 departments of the Republic produce although by negligent treatment, 5,715,200,000 eggs, valued at 133 millions of francs. That France can just as easily have 150 millions of poultry, as the 50 millions she now has.

The eggs now cost upwards of 25 millions of dollars ; so that with reasonable care, the farmer of France can as easy as let it alone have three time as much—75 millions of dollars a year for their eggs.

Mons. Geoffroy St. Hilaire remarked, that immense regions of the globe have not furnished yet any domestic animals to France. It is impossible that there should not be some kind valuable to us for their flesh, skins, hair and labor. It may be affirmed that we are (as it were) only at the commencement of our discoveries in this respect.

The regions inhabited by the Lama, the Vicugna, the Tapir, the Hoccas, the Kangaroo, the Phascolome, the Cassoars, hold in reserve for us a rich future.

In addition to these remarks of Mons. Hilaire, we observe lately the importation and acclimation of some foreign animals. A kind of stag from Bengal called the *Axis* is actually naturalized in Belgium. The Zoological Society of Antwerp has obtained quite a large number of the product of them which have been very well brought. The *Axis* is recommended not only by its grace and beauty of its robe of a brown chestnut colour spotted with white, but by its being excellent game, equal if not superior to the deer or the roe buck.

The Queen of England has received from the East Indies a fowl called the Ostrich fowl. It is said to be the largest of the feathered races on our barn yards; is easily raised, and that the Queen has already presented many pairs of them to large farmers for multiplication, so that they are beginning to spread over the kingdom. Their eggs are very large, of a brown colour and many of them.

La Normandie Agricole, 1848.

It is a mistake to believe that much is yet to be discovered in agriculture. Good practice is to be found in many districts, but there is a great want of knowledge of this in a great part of our territory, of best plants, best races of animals and of agricultural implements.

The extensive publication of good treatises, brief written, in plain and simple terms, the creation of a system of agricultural instruction, whose practice shall confirm theory, and lastly the foundation in each department of a *conservatory or museum of agriculture*, would hasten the day so much desired, when agriculture will be styled a science, an art, and a lucrative and honorable profession. Let us explain what we understand by a *conservatory of agriculture*.

Paris possesses numerous libraries, museums of sculpture, painting, antiquities, natural history. A conservatory of arts and trades, in which are united all the wonderful productions of industry and mechanics. Each branch of human knowledge has some sort of a pan-

theon, where are exhibited to the admiration of the public the products of genius and labor. But where are the conservatories for that greatest of all arts, agriculture ?

On the excessive fattening of cattle.—At this time, it is the fattest animal which is most esteemed and pays the best. The butchers doubtless push on this exaggerated fattening of the ox. The competition now is for it, for the premiums are all given for animals most perfectly fatted. It is not possible to produce this excessive fat by any amount of feeding on pastures or hay. They give to the ox the food of the man besides ; they feed him with buckwheat and the other grains. Mr. Cornet's fat ox which obtained all the honors of *fat Tuesday*, came from the richest pastures of Normandy, and perhaps of all France. However he had cost a great many bags of grain, of which wheat often formed a part. No! the best feed of the finest meadows in the open air, cannot fatten the ox to that degree required by the butchers and the competitors. To attain the desired fat, they shut up the ox in a stable and give him a different feed from that which is natural to him, the grain raised for man. How, then, shall agriculture make such efforts with difficulty to feed the people, while great quantities of grain are expended to raise some fat ? I do not know where this luxury of the table of our animals is to stop.

Chocolate is a food most completely suited to fatten cattle, far more so than grain. I have no doubt that the breeders, competitors in fat cattle, will soon have their chocolate manufactories, in order to fatten their animals excessively. In fact, to feed cattle on the food of man, is to reverse the laws which ought to govern both the agriculture and the public economy of any people who wish their own extension and preservation.

To obtain from the natural meadow, in the shortest time possible, the largest amount of the most nutritious meat, is one of the finest problems which social economy can study.

Why shut the animal in a stable deprived of light and open air, and so produce in him the disease called *obesity—fat* ? Compare the flesh of poultry brought up in a free condition, with that of those

caged in the dark and artificially fed. Compare the flesh of the hare or rabbit brought up in darkness and sloth with that of the wild one, who feeds on vegetables and flowers of a thousand perfumes. I do not ask you what the difference between them is—for every body knows.

The Guénon System.—After the application of it to the discovery of the milking properties of cows, a series of experiments has been made for the first time in the *stud of Pin*, which are interesting; we mean those made upon horses, stallions and colts. These experiments had a two fold object:

1st. To determine whether the indications observed in horned cattle, existed also in other animals, which might confirm the truth of the new theory.

2d. To decide thereby, what mares would secrete the most milk, and therefore make the best nurses.

As to stallions, Guénon, declared that the following stallions should be distinguished in the following order, viz.

Half Blood, Imperieux of Poitevin,	1st order.
do Oscar of Limousin,	2d do
do Doyen of Courbeline,	3d do
do Voltaire, do	1st do
Quarter Blood, Debardeur, do	2d do
Pure Blood, Eylau, do	2d do
do Bérenger, do	2d do

The experiments made upon mares, being susceptible of contradiction, excited a much more lively interest. Six mares of pure blood were examined by Guénon, who classed them as follows: Walebona, Lisière, 2d order.

This mare is a small milker, so that Guénon's judgement is just.

Out of the observations made by Guénon, upon thirteen mares, only two false indications were given, and it ought to be observed that in

one-half of the cases, Guénon's mistake is attributable to the embonpoint of the animals. These results have excited a lively interest in all those who have watched the experiments. In the stud of Pompadour, like experiments have been made upon the mares by amateurs, who have studied the Guénon system, and the results have been equally favorable. The importance of this system cannot be exaggerated, since it enables us to decide the future character of the animals.

Etherization des Abeilles—Chloroform for Bees!—When a discovery is really useful, it is apt very soon to be applied to uses and purposes which at first were not dreamed of. At first chloroform was only used for suffering humanity; soon however trials were made as to its utility for animals, and it is now under consideration whether it shall be used in the Abattoirs (slaughter houses) in order to spare the sufferings of animals. But here is a novel application of it. It is well known, that in order to get the honey out of a hive, it is necessary to guard against the stings of the bees. Some smoke them, others destroy the insects, barbarous modes of reaching their stores of honey; savage enough who cuts down the trees and kills the bees.

Mons. Thiernesse, a professor in the veterinary school at Brussels, has tried the effect of chloroform upon hives of bees with entire success. By means of a very simple apparatus consisting of a hollow glass ball with two tubes, one in the vessel containing the chloroform the other in the hive, so that the requisite quantity of chloroform is blown by the mouth through the tube into the hive, Mons. Thiernesse in one minute set every bee in the hive fast asleep. On examination of the hive he found the whole swarm on the floor benumbed, and *not a bee in the combs*. He took the honey out at his leisure, and then put the hive in its place. Next day all the bees were as lively and busy as ever. The experiment has also been successfully tried in the vicinity of Paris.

The Artorize.—The potato has undergone such serious damage, as to render its crop so uncertain, that the discovery of a new farinaceous plant is precious to mankind; and such a discovery has been made—the premium is due to France. The discoverer is a Norman.

Mr. Lamare Picquot, of Bayeux, already honorably known as a distinguished naturalist collector, during his travels in 1846 he met with a tribe of Indians, by whom he was at first well received. He found that these savages had in use for their winter hunting, a kind of root on which they chiefly subsisted ; this root is pulled up and eaten without any preparation whatever. Mr. Picquot began to collect these roots and the seeds of the plants. On his return to Paris he asked for a committee to examine these tubers and seeds. The minister invited the central society of agriculture to take up the question. The society appointed Messrs. Adam Brongniart, Gasparin and Payen members also of the academy of sciences. The great caution observed by Mr. Picquot in concealing this discovery excited some prejudices against him. The country which produces them is situated in the same latitude as parts of France. Mons. Brongniart declares that this American plant is altogether unknown in Europe, and the chemical analysis rigidly made by Mons. Payen demonstrates its composition to be .

Bark and woody fibre,..... 28.32

Fibred and woody centre,..... 4.47

Alimentary farinaceous matter,..... 67.21.

Wheat when ground yields 77 per cent.

Potato hardly gives 33 per cent ; not half as much as this *root bread* of the savages.

Mr. Picquot calls this root Artorize, from the Greek words *artos*, bread, and *rizā*, root. The tubers are about the size of ordinary hen's eggs. The stems and leaves grow about as high and large as Lucerne; the flowers are papilionaceus, (butterfly like,) and the seed is of a pearly color. It ought to be sown in drills about four inches apart.

January 1850.

La Normandie Agricole, 1848.—This periodical, which merits distinction for the accuracy of its statements, is one of those given to the Institute by Alexandre Vattemare.

On the subject of milch cows, the following appears in the pamphlet.

It is recollected that last year Mons. Guenon, whose name is now well known in the Agricultural world, by invitation from the Minister of Agriculture, visited various sections of France, in order to make experiments on the subject of his method. These experiments have taken place in the presence of committees in each section visited, under the inspection of one of the Inspectors of Agriculture.

A committee was afterwards appointed to examine the statements made. The committee was composed of Messrs. Gerard, Dailly, Barbier, Lefèvre Ste Marie, Rendu et Lefour. The points which they had to fix are these.

Is the principle on which the Guénon system rests, true? Are the consequences deduced from it, exact? Is the classification which he has adopted, good?

The experiments were made upon 714 animals, of which 132 were bulls, 352 cows, 240 young females, which had not yet given milk. These animals were of the Mancelle, Norman, Durham, Swiss, Charolaise and others. The administration has published the report of the committee, and the conclusion of it is as follows :

As to the principle which forms the Guénon system, the committee thinks it is true, and recognizes the relation between the figure called escutcheon, and the secretion of milk. As to the consequences to be derived from it, such as the rigorous appreciation of the quantity, and quality of the milk or the duration of lactation, (giving milk,) according to a graduated classification, the committee think that would be going too far, and that if the classification of Mons. Guenon is to be preserved, we must (in order to give it a chance of going into general use,) see that it be rendered perfect by a radical simplification. The committee think they ought to express the wish that the studies on the 714 animals designated by Monr. Guenon in his experiments, should be continued with care, as well in the establishments of the State as among individuals, and that the results should be made public. This course is interesting as relates to the future. The committee think that the book of Mons. Guenon, ought to be made over again, and that before that is done Mons. Guenon, should be sent into the agricultural

establishments and those of veterinary instruction, that he may teach the principles of his method, and study out the application of it and the means for new observations. It is very important to know, if practicable, by examining the young animals, whether or not they should be saved for the dairy.

General table of the value of agricultural products of France, in common years.

Gross revenue from cultivation,	francs, 5,092,116,220
Pasture,	646,794,905.
Woods, forests, nurseries, &c.,	283,258,235
Total of vegetable product,	6,022,169,450
Gross revenue from domestic animals,	767,251,000
do slaughtered,	698,484,000
Total revenue from animals,	1,465,735,000
Gross revenue from bees in wax and honey,	15,000,000
Total animal product,	1,480,735,000
Total vegetable and animal,	7,502,904,450

In order to understand better the agricultural wealth of France, and its progress in our days, we look into the statistics of the principal epochs of the last two hundred years, and we arrive at the following estimates :

Epoch,	Population,	Product,	Francs, per soul.
1700,	19,600,000 .	1,500,000,000	77
1760,	21,000,000	1,525,750,000	73
1788,	24,000,000	2,034,333,000	85
1813,	30,000,000	3,356,974,000	118
1840,	33,540,000	6,022,169,000	180
With the domestic animals,		7,502,905,000	224

On examination of these epochs we find that the gross annual revenue, from our agriculture is now double that which accrued during

the Empire, and that in hardly one generation, we have tripled the revenue which all the territory of France yielded under *Louis XVI*, before the benefits of the revolution, and lastly that it is quadruple that of the day of *Louis XIV*. Such is the fruit of industry, of intelligence and of the happy effects of public liberty.

The apple trees of Normandy, in 1848, June.—Our apple trees, which presented so rich an appearance only a month ago, do not keep their promise; we are assured that the cider fruit is a general failure, not much complaint is made about it because the cellars are full of the abundant crop of 1847. and the apple trees require repose after it.

Horses.—The English horse and the Arab horse, are *equally* useful in the work of ameliorating the race, but the Arab horse ought to be especially employed in the south of France.

Pulverized Manures.—We are informed that the society for the encouragement of agriculture in Paris, has given to the general manure company, the large gold medal of 3000 francs, \$600, for the course they have taken in converting excrement by disinfection into manure.

Judge Van Wyck.—Cattle can hardly be fatted on pasture or hay, unless of the very finest quality. The meat so formed is undoubtedly most delicious and wholesome, the result of rich natural feed, of pure open air and good water. It requires as rich soil, careful management, selection of finest and purest seeds, freedom from foul seeds and careful feeding too. Our grain does not need more of all this careful management. And cattle should not be allowed to pasture, until the grasses are sufficiently strong to bear the tread of animals; nor should too many of them be put on a field at one time; over stocking is especially to be avoided. By inattention to these points, the farmer, his land and his cattle are ultimately all losers. When rich crops of grass are raised and not fed too close, much of it falls and decays, and cattle drop their dung; the land becomes enriched. Our farmers have certainly improved in this matter, but are yet far from perfection.

Mr. Carter.—It is an error to allow different animals to feed on the same field ; they select various plants in some respects, and cut too close ; cattle leave often tufts of grass irregularly on the field ; these should be mown down. Never put too many cattle in one field. Solomon distinguished the cattle of his time as being some from the field and some from the stall. It is a general rule that three cattle can be fed by cutting for them, and but two on pasture. The practice of bleeding cattle continues ; butchers bleed calves about once a week. Poor people in Europe are very fond of this blood ; as food they deem it a luxury. It is not true that the cattle are bled for that purpose, but to improve their condition.

Mr. Bowman.—I dusted a measured acre on my farm with fine charcoal made of maple wood. A severe drought occurred. I found that the grass on that acre flourished, the grass on the adjoining fields was burned up. I supposed that the charcoal attracted moisture, condensed the ammonia, preserving it for the use of the grass. Next year I ploughed that acre well, and there being some Canada thistles on it, I sowed a bushel of ground salt broad cast, and most of the thistles were killed by it. I then put in barley, first dusting the ground again with fine charcoal ; after that I sowed on it *timothy*, and had fine crops of both of them, the timothy giving me nearly three tons to the acre. I would cover a field six inches deep with straw and burn it, then plough well. Many prairie farmers have cattle fattened on the native grass, when it springs fresh after the burning of the former crop ; the beef of those cattle is particularly fine, juicy, delicious, *the fat is never tallowy*. There is none of that strong oily taste so often found in beef fat. I do not like mutton ; but in Wisconsin, where the sheep feed on the prairie grass, I ate mutton every day for a long time, it was so sweet. The lower stems of the grass, some of it being charred by the fire and the grass chiefly burned to ashes, attract ammonia, fix it, and then supply it to the young grass. The beef of the Virginia wild fed cattle is sweet.

Mr. Carter.—I am pleased with the remarks of Mr. Bowman, on the prairie grass. Cattle do not like that grass when it is grown up tall, but they love it when it is kept down. When the tall grass is made into

hay, then the cattle like it and thrive upon it. I have seen hogs well fattened by feeding and rooting in the prairies, where also they root up our native wild potatoes and eat them.

Mr. Pell.—I like what Mr. Bowman has said about charcoal. I have tried the experiment of growing grain in pure charcoal, and succeeded. I have put forty bushels of charcoal upon an acre. A spot where the wagon, which had brought the charcoal, had stood, proved remarkably fertile. I measured the clean wheat from that spot, and found it had yielded at the rate of seventy-eight bushels to the acre. I harvested it while the grain was yet so soft that with my finger and thumb I could readily press out of the grain the gluten. That crop brought me an extra price; it was the finest wheat to be seen any where in my neighborhood. I have used charcoal very largely upon my land. It has the property of attracting oxygen, hydrogen, nitrogen and ammonia, and keep it to supply plants. I have tried salt on the Canada thistle root where the tops had been cut off, and it readily destroyed the whole.

W. Bowman.—I plough deep and often, first with my plough down to the beam, then with my sub-soil plough until I have a *depth of eighteen inches*, and I cross plough to the same depth. I got forty-five bushels of wheat off an acre, and the grain weighed sixty-four and a half pounds to the bushel. I used some lime, and some ashes, some *saw dust of bones* and charcoal dust in the making of my compost. Charcoal put on the barn floor to mix with the dung and urine, very soon *dry rots the floor*; oak is too hard for the floor; hemlock is best for cattle and horses.

Mr. Bowman.—On my farm in Monroe County, I have ploughed a field of muck, deep; sowed one hundred bushels of quick lime on it per acre, one bushel of fine salt; *I harrowed and cross-harrowed it eight times*; I then put in potatoes, carrots and parsnips. That field gave me four hundred and fifty bushels of potatoes the acre. Eight hundred bushels of the largest carrots I ever saw, the acre. The salt saved me much trouble from weeds.

I observed once a large pile of tan in my neighborhood, and asked what the owner would take for it ; he said he would be much obliged to me if I would take it away. I did so ; there were about 150 wagon loads of it ; I mixed lime and ashes with it, worked at it, and in three months I had a heap of excellent manure. I found it very good for fruit trees.

Judge Van Wyck.—There was abundance of carbon, the great agent in vegetable growth, trees, plants, &c., the very articles is derived from them, and charcoal proves both the quantity and the quality, and necessity of it in the vegetable structure. When wood is burned to ashes we then obtain an *alkali* so important to neutralize acids, and also that indispensable element *pot ash*. Muck requires considerable time to subdue it to a useful condition for plants. In all farm operations, our farmers will have the cheapest way.

When *bone earth* (phosphate of lime) is exhausted in a soil, the defect is immediately known by the failure in the milk and butter and cheese, which are generally sold off the farm from cows feeding there. This matter has been proved by examinations, made by proper chemists ; and when the absent phosphate was added to the soil in the required quantity, it was found that the grass, milk, butter and cheese were restored to their fine qualities, &c.

This experiment has been fully tried in dairy establishments in the vicinity of London.

Mr. Bowman.—A well made manure bed will kill all weed seeds ; a matter of great consequence to farmers. Why would a man cart weeds upon his land ? Kill them in the manure heap as well as in the field.

Mr. Carter desires the club to take up the subject of providing convenient farms, where immigrants who are poor, can be furnished with employment until they can go forth and buy themselves farms. Adopted. The Club adjourned.

Feb. 19th, 1850.

ROBERT L. LIVINGSTON, Esq. in the Chair. · HENRY MEIGS, Secy.

Mr. Meigs read the following translation made by him from the recent works received from Europe, some by the hands of Mr. Vattemare, viz :

From *La Normandie Agricole*, 1848.

Coal employed as an amendment or stimulant to soil.—We know that carbon plays a very strong part in the composition of vegetables. We know also that the earth furnishes that element only in feeble portions, excessively feeble, to plants, which are obliged to derive the principal portion of the necessary carbon from the air.

Some time ago it was a subject of inquiry, whether we could not furnish plants with the carbon necessary to facilitate their vegetation. In consequence of some experiments which the editors of the *Encyclopedia* believed to be their duty to recommend, they advised the use of coal, which had been long abandoned. These experiments have lately been renewed and we are assured, that the use of sulphurous coal, above all, will be favorable to agriculture.

We recommend therefor the trial of the dust of coal, the large amount of which, if useful, will aid much our farmers crops.

From *La Normandie Agricole*.

Great Britain cultivates (as a medium amount) 3,400,000 acres of potatoes, which amount in weight to about 50,600,000 tons, food equivalent to about 35,700,000 quarters (8 bushels each) nearly 286 millions of bushels.

The Secretary read the following :

We feel highly pleased with the daily growth of knowledge in the great *profession* of agriculture, and the respect which it begins to receive from the greatest men of the day.

We like the following from Lord Brougham, spoken recently by him at the Cumberland and Westmoreland Anniversary Agricultural entertainment at Penrith :

He gave a toast "Success to the Cumberland and Westmorland Agricultural Society." As to the corn law question, I am sick of the very name of corn. He had never asserted, as many foolish and thoughtless people, in the giddiness of the moment, had done, that repealing the corn laws would make the loaf larger or price smaller; and if I had said it, the evidence would have been against me every hour since. Some agitators said that it would lower the wages of the working class. Oh, then said the people, if it would lower wages, God forbid the repeal of the corn laws. But it will cheapen bread, said the agitators? We are not sure of that, said the people. Nothing more was said on lowering wages, and no more public meetings were held, except *by ticket*.

The great object of this meeting is the improvement of the green earth. I must be permitted to say that this improvement, which was every man's interest—the interest of the landlord, of the tenant farmer, of his workmen, and of all the people, whether connected with land or not, as consumers, ought to be strenuously, actively and unremittingly pursued. I hardly know wheat from barley myself, and with wheat and rye I might be taken in. In short I know almost as little about agriculture as the Legislature does; it was utterly impossible to know any less; for they had passed a law—it is a model act; it imposes various penalties for over driving cattle. They did not know an ox or cow to be cattle, and in the interpretation clause, which they passed very carefully, they said, putting forth all the knowledge they had, "*cattle shall be taken to mean horses*." Not very like to be *over driven*. "Goats," do. "Mules" hardly ever seen. "Swine" not to be driven. They might as well drive the Legislature; the only way to drive them is to pull them back.

And a farmer ought to keep regular and accurate books, as much so as a manufacturer or merchant, otherwise he never could tell *exactly* what state he was in. My agricultural friends must not start back from pen and ink, but must adopt a good system of accounts.

The noble Lord sat down amidst loud cheers.

Translated from the *Revue Horticole*, Paris, 1849. By H. Meigs.

Progress of Horticulture in southern Australia.—Some of our readers may doubtless remember that we have, for some time past, entertained them with the singular production of that region, which seem to form an exception to all other countries by its unique products. Not only are the plants, animals and all brute creation, different from those of other parts of the globe, but the climate also—all form anomalies in the midst of creation. It has hitherto belonged to the English, and in all probability it will be their part to people this new world, bring it into cultivation, cover it with flourishing towns and cities, where will be displayed all the most refined civilization of Europe, a glorious part which England alone knows how to play, one which ought to secure in the approaching future to her bold and industrious children, the preponderance in numbers over all the race of men on the globe. The day will come when the people of British origin will form a girdle about the globe, interrupted only by the ocean. We foresee when the epoch is coming in which the immense solitudes of North America, will be covered with villages and cities, whose people will speak the English language. In less than one century probably the Cape Colony will in succession invade and occupy the whole extra tropical part of southern Africa, and who knows that the language of old England will be prevailing, (in less time) in the Australian continent, in Tasmania, New Zealand, and some of the great islands of Polynesia. We freemen are playing a very different part. Now ought we to feel humble in our national self-love, when we see that rival people pacifically invading the globe, while we revolutionise a little by internal political commotions, *but never colonise?* And of late years we perpetually debate about the keeping of Algeria, make a flood of pamphlets on that topic.

The British Colony Adelaide, is situated upon the southern shore of Australia, in about 35° of south latitude and 136° east longitude, in a climate like that of the south of Europe, as well as the northern edge of Algeria. For, in the southern hemisphere we find, in like latitudes, somewhat less heat than in the north, and where the western portions generally enjoy a milder temperature than in the eastern.

This enables us to comprehend why the vegetables cultivated in the south of Europe, can be acclimated on the southern shores of New Holland, a fact already confirmed by experience. Many of the industrious emigrants who form that new colony, seeing the advantages for horticulture there, zealously went into that business with all their money and all their devotion.

They have already made vast gardens in this country of their adoption, filled with a multitude of plants from all the countries of the world, and particularly from Europe all the plants used for food and other uses.

The first gardener of this colony is Mr. Stevenson, who went to work to clear off many acres for a garden of acclimation, which in the course of the last five or six years, would rival those established by the government of France and England, at vast expense, in their colonies. Now there is not a fruit or a vegetable cultivated in Europe from the fig, olive and orange down to our most common vegetables, which are not in Stevenson's garden at Adelaide. But the peculiar mildness of the climate has enabled him to add a great number of vegetables unknown to our gardens, such as bananas, guavas, pine apples and other tropical plants. Stevenson has been especially careful to have there, not only all those raised in the botanical garden at Sidney, but hundreds of others from the most celebrated vineyards. This example is not lost, other colonists have followed it; Messrs. Slack and Davis have also obtained remarkable results. The garden of Mr. Slack is about 20 miles from Adelaide on the road to Mount Barker. Its situation is marvellously adapted to *the apple*, that favorite of England, for which a grand orchard is reserved.

Cherries, gooseberries, red and spotted, and strawberries flourish there. But the glory of his establishments is his extensive vineyard, which has the honour of having first furnished wine to the people, a wine equal to those of the Rhine itself. Nevertheless Mr. Slack, also makes beer, the English liquor; his hops grow better than the English.

The garden of Mr. Davis, five miles from Adelaide, was commenced in 1840, it contains the largest orchard in the colony, viz: 15 acres, entirely planted with fruit trees. Here are the peach, nectarine, apricot, cherry, all kinds of prunes, figs, apples, pears; all the trees are growing with remarkable vigour. The vineyard of $3\frac{1}{2}$ acres is divided into 3 parts; one to furnish grapes for the table, one raisins, the other wine. Davis' garden supplies the greater part of the markets of Adelaide. Besides these gardens there are a great many other smaller. The fruits are very superior in size and quality to any gathered in England. The peaches 8 to 10 inches in circumference, weighing 6 to 8 ounces, and the flesh exquisite. The apricots and prunes, above all the *green Queen Claude*, are remarkable for their excellence and beauty. Melons grow large and fine in quality; the mulberry tree does well; mushrooms, highly esteemed for their quality, are found by hundreds of bushels around Adelaide, orange, lemons and limes.

Revue Horticole, Paris, December 1849.

The gigantic water lily at Chatsworth, England.—The first public announcement of the discovery of this extraordinary aquatic lily of South America, was made in 1832 by Doctor Poeppig, who in his relation of his journies in Chili and Peru, mentions it as growing in the Agaripes, large branches of the river Amazon. Before this time, other botanists had discovered it; Hænke, Bonpland and Mr. Alc d'Orbigny. The latter sent to the museum of Natural History of Paris, in 1828, dried specimens of its leaves and flowers.

In 1837, Sir Robert Schomburgk discovered the same plant in the river Barbice, in English Guiana, where he (under the patronage of the government of Great Britain) for the London Geographical society. He gathered specimens and made drawings of it, and it was from these that the first complete description and figure of this wonderful plant were made.

In 1846, Mr. Bridges raised it from seed in the royal garden of Kero. The plant now at Chatsworth, arrived there on the 3d of August, 1847. After great care of it, the first flower bud showed itself on the 1st of November and opened on the 8th. These buds were about one foot above the surface of the water, and they began

to open in the evening when the flower was pure white, and about a foot in diameter. Next day, towards evening, it began to assume a beautiful red color in its centre, and during the night it was completely expanded. Its numerous external petals were bent up and rested on the water. On the evening of the third day it perished; while in bloom the flower exhaled a peculiar and agreeable perfume, resembling ripe fruits. The leaves (the largest of them) measured about thirteen feet in circumference. The leaf and stem were so strong that a small child was very well supported upon one of them for some time.

Washington's Agriculture, and his projected Board of Agriculture.—In his letter of February 20, 1786, in relation to a Board of Agriculture for the United States, he says, “Doubts having arisen from peculiar calls on the Treasury of this country, for money (occasioned by the expenses of our wars with the Indians, the redemption of our captives at Algiers, obtaining peace with the Regency of Morocco, together with other demands, in addition to the ordinary expenses of government,) that funds could with difficulty be provided to answer them without imposing additional taxes, a measure wished to be avoided. I was restrained after consulting one or two influential members of the Legislature, from introducing your plan for a contribution; and under these circumstances, I avoided communicating the “Extracts from the minutes of the proceeding of the Board of Agriculture, respecting Elkington's mode of draining, &c.,” except to one gentleman in whom I had entire confidence, and who I knew was always disposed to promote measures of utility.

“These being the grounds of my proceedings, I shall hope, although your expectations have been disappointed, you will receive this as an evidence of my candor.

“Agreeably to your desire, I have put ‘Outlines of the 15th chapter of the proposed general report from the Board of Agriculture, on the subject of manures,’ into the hands of one of the most judicious farmers within my reach; and when his observations thereon are received, they shall be transmitted to you. I wish my own engagements would allow me to attend more than I do to these agree-

able and useful pursuits; but having been absent from what I consider my proper home (except on short occasional visits) for more than seven years, and having entered into my sixty-fifth year, a period that requires tranquility and ease, I have come to the conclusion to lease my Mount Vernon estate, except the mansion house farm, and a grazing one three miles off, which I shall retain in my own occupation, for amusement, whilst life and health is dispensed to me."

He writes on the 1st of March, 1797, "Having resigned the chair of Government to Mr. Jno. Adams, last Friday, the day on which I completed my second four year's administration, I am sorry to add, that nothing final in Congress has been decided respecting the institution of a National Board of Agriculture, recommended by me at the opening of the session. But this did not, I believe, proceed from any disinclination to the measure, but from their limited session, and a pressure of what they conceived more important business. I think it highly probable that next session will bring this matter to maturity."

A southern writer, some years ago, said that it cannot have escaped the observation of the intelligent reader, that it has now become quite old fashioned for our Presidents to make in their messages, any specific recommendations in relation to the farming interests. However, as fashions come and go, and those of a *by-gone* age are often revived and enjoy again their hour of popularity and transient glory, we may yet hope that some future President of the United States, may tread in the footsteps of Washington, and arouse the nation to the mighty consequences which await the final *triumph of American agriculture!*

Dr. Antisell remarked that Adelaide is situated far out of the track of commerce; the soil of the country in the interior is bad; the native plants peculiar.

Chairman.—Our regular subject is now in order.

Judge Van Wyck, from the special committee on the subject of providing agricultural labor for immigrants, made a partial report.

Mr. Carter, from that committee, observed that the committee judged that the subject is one of more importance than they had, at first, supposed, and one of great interest to our country. Among other things it is believed that one emigrant office had made \$100,000 in one year.

Dr. Antisell.—The subject requires much consideration. The committee will report at the next meeting.

Mr. Pike stated some of his experience in reference to the employment of immigrants on his farm, shewing that it was of small value to him.

Mr. Carter.—Some of our charitable institutions not only maintain, but make a great many paupers.

Russell Comstock was requested to answer some questions as to his discovery of a valuable secret in agriculture, relative to which a bill is now before our Legislature, contemplating some compensation to him on his divulging that secret. The certificates of many intelligent and honorable citizens attest its importance.

R. L. Pell asked Mr. Comstock several questions, to which Mr. Comstock replied : I believe that my mode of growing fruit trees will prevent extraordinary decay of them. That it will cause peach trees to yield their fruit in the third year from the planting the pit ; apple in four to seven years ; pears in the seventh year. The trees are admired for their thrifty, healthy growth, and they will live longer than those treated in the common way ; that they are not liable to disease ; never grow so bushy as others do ; have no suckers ; require little, if any pruning. Plum trees clean, healthy growth ; bear in the seventh year ; high manuring does not hurt them. I have grown potatoes, in one season, from the seed ball, to the size of two to three inches in diameter ; and I can grow potatoes to the amount of one thousand bushels on one acre.

Chairman.—Our regular subject is in order—deep ploughing, sub-soiling and under draining.

Judge Van Wyck.—These interesting topics, although so often the subject of discussions, are very far from being well understood, generally. A vast proportion of our farmers still continue to plough no deeper than from three to five inches in depth ; they impoverish their lands, nor can they keep so shallow a surface rich. The mineral aliments of plants, which have gone down deeper, must be brought up again by deep ploughing, and the sub-soil be mixed with the surface soil. Plough deep first with the common plough, then deeper still with the sub-soil plough. This operation produces the effects, in some degree, of under draining. I repeat what I have before observed in regard to draining in our country, that it is as yet required but in a small number of places, and it requires capital to drain on the extensive scale.

Mr. Carter described the common method of ploughing the prairies of the west. The first operation is like paving, it turns over the surface to the depth of one or two inches, after that they plough several inches deep. They then git rid of the native grass.

Chairman.—The law is, I believe, universal that wherever there is much clear sunshine, there we ought to plough deep. That the gaseous parts of all manures do certainly rise to the surface, whether by capillary attraction or by the power of positive and negative electricity or otherwise. They rise in loose soils from the depth of many feet ; those elements which dissolve, enter into the composition of plants ; if it does not dissolve, it is not manure. Forest soils are usually not more than one foot deep. If manures should descend in the earth our wells would be destroyed ; water is most pure in loose soils. The notion that manures leached downward is a thousand years old. The sub-soil, which is usually of a lighter complexion than the surface soil, after being ploughed up soon acquires a dark colour. Deep ploughing enables the roots of plants to penetrate deep ; when a rich meadow is covered by deep filling in of earth, that earth soon becomes rich. As to draining, I think it is preposterous to talk of draining in this country as they are obliged to do in England. The evaporation of a day here is equal to that of a week there.

Dr. Antisell observed, that in general, the cost of draining in England, is from eighteen to twenty dollars an acre.

Mr. Carter.—Potatoes do well planted on the surface with manure over them. Top dressings are very useful.

Dr. Antisell.—Potatoes are planted in Ireland, much in the manner last mentioned.

Mr. Elliott.—We have termed this subsoiling, skeleton ploughing, going to the depth of fifteen inches, but covering successive furrows the subsoil with the soil. Hogg's garden is trenched about three feet deep, his trees are always vigorous, never suffer from drought. I have drained here in damp lands, at the foot of side hills, and in what I consider to be the cheapest way, that is, trenches with stones of various sizes in them, enough of them, of about one inch in diameter, to make the crevices so small that the mice cannot get in and do the mischief to the drain, which otherwise they will do. I have used a spade of peculiar form for making trenches, it is somewhat concave and tending to a point; it lifts out of the trench all that it cuts without spilling portions of the earth, which crumbled are more troublesome to get out.

Dr. Peck, of Jamaica, Long Island.—I have a piece of wet land on the island, worth nothing without draining. I drained a part of it about four rods wide, and five rods long. I made trenches in it three feet wide and about fifteen inches deep. I filled these with the pure siliceous sand, throwing over that the wet earth taken out in making these trenches, smoothing all, I formed a rich and valuable spot of it, which was worse than useless before.

Subject-adopted for next meeting, Transplanting Fruit Trees.

Club adjourned to first Tuesday, of March 1850.

H. MEIGS, *Secretary*.

March 5th, 1850.

Judge ROBERT SWIFT LIVINGSTON in the chair. HENRY MEIGS, Secretary.

Mr. Meigs read the following translations, made by him, from the Parisian works recently received by the Institute. Remarking first, that Paris collects from all the world, and therefore is an emporium of art and science exceedingly convenient and useful to the general diffusion of knowledge.

Extracts from *Revue Horticole* of December, 1849.

Preparation of plants for an Herbarium, to preserve almost unaltered the colour of the leaves and flowers.—By the common methods the trouble is considerable and the colour lost. As I gather plants, I arrange them in leaves of brown paper, which absorb the moisture from dew or rain. They suffer here no change in twenty-four hours. On the next day I arrange them in very dry paper, and then place them in an apparatus of my own invention, in which they dry perfectly in twenty-four to thirty hours, and the brilliant colours of leaves and flowers are preserved. My plan is founded on the fact that the water which is in the composition of the plant, slowly volatilizes under ordinary circumstances. I then thought of raising the temperature and at the same time diminishing the atmospheric pressure. For this purpose I made a cylindrical copper vase about twenty inches deep by twenty four inches diameter; this holds conveniently my paper packet with the plants. This vase is then heated by slacking lime placed around the empty part of it; I then use my air pump and exhaust the air within; I pump at intervals for two or three hours; I then let the vase alone for 24 to 30 hours. At that time I find my plants perfectly dry with their colour in all.

Revue Horticole, Paris, November, 1849.

PLANTS OF INDIA AND CHINA.

Translation by the Secretary of the Farmer's Club, of the American Institute.

Discoveries of J. Dalton Hooker, of new garden plants in the Himalaya Mountains.—Our readers have doubtless not forgotten, that about four years ago, an English collector of plants, Mr. Fortune, was com-

missioned by the Horticultural Society of London, to travel through China, in order to collect ornamental garden plants. The expectations of all the gardening world, were not disappointed for the adventurous excursions of that traveller have procured for Europe, a considerable number of very interesting plants, some of which, have already become generally cultivated.

We also published recently an account of one of those fine flowering plants, the *Weigelia Rosea*, now growing abundantly in the Van Houtte garden, at Ghent.

But the success of Mr. Fortune, is now greatly eclipsed by that of another traveller Mr. J. Dalton Hooker, who before his voyage to Borneo, which was his principal object, had the idea of making excursions through India, and especially through the immense Himalayan chain, so little explored hitherto by Europeans. We do not know yet what discoveries are reserved for him in Borneo, but we are already sure that those which he has made in the mountains of India, are sufficient to secure the glory and the fortune of any collector. They will certainly constitute an epoch in the calendar of Horticulture. If space would permit, we would gladly go into details of a journey so rich in observations of all kinds, peculiarly in ornamental plants, but we are compelled to restrain ourselves to a small number of pages, for we can merely glean among the discoveries of our traveller.

On leaving Calcutta, he shaped his course directly to the north, and only stopped at Darjeeling, a town situated on the crest of the sub-Himalayan chain, of Sikkim, which is on an elevation of about 6000 to 7000 feet above the ocean level. Here the climate is very like that of middle Europe, the result of its elevation and its latitude 27° north. In fact the medium temperature of the year is within a trifle the same as that of Paris, but the winter is rather milder; occasionally snow falls abundantly. Dr. Campbell found the snow deep, three years out of five. We have said Darjeeling is situated on the sub-Himalaya chain, but we must not confound it with Himalaya, properly so called, which is situated a little farther north. The heights which surround Darjeeling, those colossal mountains showing all their grandeur—nothing can convey to others the sensations of the traveller,

who views those masses so far, more gigantic than our Alps, or the Andes, which bow their lofty heads before the Himalaya, of which one summit the *Kinchin Junga*, is *twenty eight thousand and nine hundred feet above the ocean level*, or five miles and an half nearly. It has no rival on the globe. It is difficult to imagine the variety, and the power of the vegetation which covers the foot of the sub-Himalayan mountains, and all along their flanks and rising upwards, insensibly losing their tropical character to assume the features more and more of European plants. All along the road Mr. Hooker, made an ample gathering, a noble harvest, but his most precious discoveries were made at the summit of the sub-Himalayan chain, that of the Rhododendrons, or *Rose Trees*, which for their size and beauty of their flowers, leave far behind any thing we ever saw of that remarkable kind.

Four species of these splendid plants grow spontaneously around Darjeeling. They are called the Dalhousy, Campbell, and the Argenteum, (silva,) and the Arboreum, (tree); and these are associated with Belanophova, (Parasitic plants), with Laurels and with Magnolias. A little farther west, on the frontier of Nepaul, these same species are again found in much greater numbers, and mixed with other species, such as *Rhododendron barbatum*, or *bearded rose tree*, and the *Falcoun rose tree*. We are now obliged to leave Hooker and his perilous adventurers through rich unexplored regions, that we may have room to give our readers some idea of those singular Rhododendrons, which he has succeeded in getting home to England, alive and well. The word singular, which we have used to characterize them, is not too strong, for they are, in most respects, markedly distinct from all before known, both on account of their mode of vegetation and their extraordinary dimensions. In fact some of them are Epiphytes; that is, grown on trees, burying their roots in the crevices of the bark, and among the mosses on the tree; pretty much like the Orchidea. Such is peculiarly the case with the Rose tree Dalhousy, a magnificent shrub of from six to eight feet in length, with slender branches interlacing adjacent plants, and these branches terminating in a bouquet of bell formed flowers, each of which is nearly four inches wide, by four in depth. These vast coralla at first are pure white, but as they grow older become spotted with orange colored spots, which increase their brilliant effect; and not the smallest ornament of this shrub is its leaf

over four inches long, of a bright green on top, and below marked with brownish spots ; these leaves form a collar all around the bouquet, which is formed on the end of each branch. One would believe, from the Epiphytic growth of this plant, that it must be difficult, if not impossible, to cultivate it. But this is an error, for as Lindley remarks, rationally, that the *Epiphysis*, (Parasitic), manner of its growth, reduces the matter to *mere drainage* ; and that as it grows at the elevation of 2000 metres, where ground is at times covered with snow, it will flourish in open air, in our temperate latitudes, &c.

Immediately after the *Rose tree Dalhousy*, we place the *Silva one*, which, although its flowers are about one third smaller, has leaves often nearly a foot long by 4 inches wide. Its bouquets, formed of numerous corolla combined, of a snow white, attain the size, nearly, of a man's hand.

By its *habitat* (home) at 2000 metres high, we suppose that it will do as well in France as the orange does.

The Falconer rose-tree (*R. Falconeri*) presents another order of beauty. This does not shine by enormous development of its flowers, but by its tree like dimensions, by its figure, and also by its foliage, which surpasses in grandeur the preceding species. Figure to yourself a group of stems rising erect, or some of them bending, to the height of from twenty-two to twenty-six feet, with proportional sizes, some branches forming a sort of head crowned at top with upright large leaves of a leathery character, like those of the *Magnolia macrophylla*, (large-leaved magnolia,) all this is terminated with a spherical bouquet of flowers, close together, of almost a pure white ; thus we have some idea of this majestic species. It is useless to say that this is not a parasite like the Dalhousy.

But what shall we say of the *bearded rose-tree*, (*R. barbatum*), which launches off its branches at the height of forty to fifty feet high, with their tufts of green foliage which crown voluminous bouquets of red flowers.

More will be heard from our interesting traveller. By the last mail from India, we learn that in July last, he was encamped still in the mountains of Sikkim, which were then covered with an admirable vegetation; the rain was incessant, provisions scarce and dear in consequence of the difficulty of communication with inhabited places, all the bridges had been carried away by torrents, and the road to Darjeeling cut off at many points by the waters, so that Darjeeling could only be reached by a long circuitous journey. In spite of all this, Mr. Hooker was in excellent health, and he was increasing his collection every day. He has already collected *thirty new species of the Rhododendrons*, many of which, he says, are still more beautiful than any now known to botanists or gardeners. These plants never flower except in the rainy season, and then the mountains are almost inaccessible to travellers. These mountains seem to be the *head-quarters* of the Rhododendrons of all Asia. Besides these, Hooker has found a magnificent rose of a brilliant scarlet color, and as large as a man's hand. The next packet will bring an immense number of remarkable plants.

By the same mail we have received news from Mr. Fortune, that the British East India Company has sent him to China to procure all the varieties of the tea plant. That he has purchased largely of the plants which the company intend to place in cultivation in the North Western provinces, in order to make tea on a great scale.

Extracts from *Revue Horticole*.

Manure for Grape Vines.—Mr. Persoz has recently given some valuable instruction in the manuring of grapes vines. He finds on experiment, that some of the elements grow the wood of the vine surely and perfectly, while others grow the grapes.

He places a compost of pulverized bones, clippings of skins, leather, shoemakers and tanners scraps, horn, old shoes, blood and a portion of gypsum (plaster of Paris), upon each square metre, (some ten square feet) of the trench, in which the vines are planted. This composition is to grow the wood of the vine. When that is well grown, he then supplies at the roots the salts of potash, in order to make the vines bear grapes. He spreads on the surface of the trench, at a distance

from the root of the vine of about three or four inches puts about five pounds of the mixture of these salts, on about ten square feet about the root. Of these salts he takes ten pounds of silicate of pot ash, and one pound of the double phosphate of potash and lime. This composition supplies the vine for a long time with the portion of potash required by it. It is a good plan, he says, to put every year about the roots, some *grape marc*, that is the residue of grapes after the wine has been pressed out.

Some vines are always rich in wood and poor in fruit. We may yet by proper manures, make such vines bear plenty of good fruit. In the application of the fertilizers, care is necessary as to the quantity of the dose ; for too much of the good thing is hurtful to the vines. We desire to establish the scientific rule—practice must carry it out.

Dr. Antisell, in reference to the application of bone manure, recommended the liquor of bones, so called, which is produced by dissolving bones in sulphuric acid, one part with two parts of water.

Dr. Antisell, from the special committee on the employment of immigrants, made a partial verbal report, and said that the governors of the alms-house had recommended a separate institution for the management of this important business. A grand jury has also done the same thing. It is stated on authority, that one hundred thousand persons in this city, receive more or less from the public charity ; that the alms-house only relieved sixty thousand persons. The committee will probably be ready with a full report at the next meeting of the club.

Mr. Elliot.—Yes ! in 1847, it appears from the report of the then commissioner of the alms-house, that one hundred thousand persons received relief from that institution alone. The future demands energetic operations. The flood of immigration, vast as it is, is but beginning.

Mr. Carter.—It appears that between the 1st of January, and the 10th of March, 1848, out door relief was furnished by the alms-house, to fifty- six thousand eight hundred and forty-eight persons.

Chairman.—The regular subject of the day is now in order, "*transplanting trees.*"

Dr. Underhill, of Croton Point.—The man that grows a tree, is in my opinion, more important than the man who cuts it down; and I foresee that in the future increased wisdom of men, they will re-establish the forests, and provide that *great proportion of foliage* so necessary to health, knowing that impure air is rendered pure by the vegetable power operating by means of foliage. Benefactors of the human race will set out proper trees in barren places, and restore the departed fertility and beauty. We already find a scarcity of the most important timber, the white oak is among them. Some public benefactor should now commence growing that noble tree; another should plant and cherish our locust, especially, and no tree rewards the careful planter more; it flourishes on our sandy lands, and when once a forest of them is established, they continue to grow from the roots, and will, I may safely say, go on to do so for a thousand years; there is scarcely any tree like it in this particular.

Plant acorns too.

Chairman.—Yes, sir, and Chestnuts, for that tree, like the locust, is reproduced as well as that from the stump, as well as seed.

Dr. Underhill.—True, but its timber does not equal that of locust in value. For proper transplanting of trees, the hole where the tree is to stand, must be large enough to receive the greatest quantity of roots that can be taken up, and spread out fairly in the hole, vegetable mould should be put in it, plenty, so that the roots may be imbedded in it, then cover over with clay. Thus the tree will bear drought and cold well. The clay covering will prevent the ascending elements of fertility below from passing off too rapidly.

For the establishment of an orchard plough very deep, and put the vegetable mould as deep as possible; set the trees so far apart and trim them so that the sun may reach all parts of them; be careful to set the tree, in reference to the sun, as it grew, for the sunny side always has a quicker and fuller growth than the other, so that the heat

of the tree is out of its centre. If the position is reversed, the tree is apt to grow crooked, and the bark to become diseased—I find it so in the pippin apple trees. Set out natural stock to engraft on ; they are hardy. By following this plan I have had fruit from them in six or seven years less time. Take the stocks when of about two inches in diameter, graft on the limbs which are as thick as a thumb, and such stocks and grafts are less subject to any disease.

By the common method of merely digging a hole through the top soil down to the sub-soil, especially where that is (as is very extensively the fact) hardpan, you may pray for the goodly growth of the trees so treated, but your prayer for thrift will be in vain. I can tell which way the last heavy gale has blown, by the leaning of trees so planted. Place a tree near the dividing line between a poor and a rich field, and you will find its roots running away to the rich one, its branches growing over that way, its fruit growing on that side, and when it blows down it will be to the rich land. Plough deep for an orchard, then the roots will enlarge ; go deep, and there will be more of those smaller roots so important for the supply of the tree.

I shall never cease to cry aloud in behalf of a far more extensive use of good ripe fruit, for human health in high vigour, depends upon a free use of fruit, which dilutes the blood, purifies the *rebellious liver*, and gives spirit to the system ; all the wealth of India and California, cannot pay the man who has a *bad liver*. I am sensible that I am digressing from the subject before the club ; but so deeply am I impressed with the importance of this matter of fruit, I cannot omit any occasion to increase the motives, for universal care in production of fine fruit, to give fine health to man. Fever is warded off by proper use of fruit. It is powerfully *anti-septic* ; and if you will grow fine fruit, you will find that if you should not have customers enough to buy it, at least you will become *an excellent customer to yourself* !

The same deep ploughing which I recommended for planting orchards, I also recommend for a plantation of strawberries ; for they will, if they can, send down their roots *two feet* ; and the vines will yield abundantly more fruit, especially in dry seasons.

As to manure for grape vines ; compost manure in which sods are put ; the refuse mortar of old houses ; the whole heap saturated with the urine of the stables ; some bone ; some phosphate of soda ; leaves of trees especially of the vines themselves. Trees will thrive with the same treatment. There is such a thing as over manuring ; we should be careful of that, for trees growing in our rich soil, grow too rank ; their pores are too large and full of fluid, they hardly bear frost which bursts them. I have tried a section of wood so grown, when it was dry, and I could blow out a candle, by blowing through the pores of it.

Mr. Meigs observed, that when we select a spot for our dwelling, barns, &c., it rarely happens that the right kind of trees are found growing in the desirable positions ; so that we commonly behold a new habitation surrounded with young saplings just set out, giving the melancholy prospect of the old age, or the death of the owner, before the trees have reached half their proper size. By proper methods, that owner could have commenced the transplanting of such trees as he chose at the same time he did building the house. He would place them, some near his dwelling, some at the barn, &c. Human life is too short to grow large trees.

Judge Van Wyck.—Exact methods for transplanting the various kinds of trees, ought to be generally understood. I have observed that some persons cut off too much of the top and root ; thereby cutting off its means of growth and life ; many leaves are absolutely required upon a tree, in order to elaborate the sap which nourishes it. The sap ascends from the earth through the roots to the tree, thence upwards until it reaches the leaves, there it is elaborated for the use of the tree, then descends to the roots. In Europe, they have safely transplanted trees of forty feet high, by three or four feet in circumference to places bare of trees, thus beautifying the before naked surface forthwith. They mutilate the top and roots as little as possible.

Dr. Underhill.—We proportion the cutting off the tops to that of the roots.

Mr. Carter.—It will not answer well to transplant trees from a dense forest to an open spot, when you would have those forest trees succeed. You should transplant numbers, and place them in close neighborhood for some time, and afterwards separate them from each other. I have transplanted several hundred trees, some of which were thirty feet high, successfully. I made the holes to receive them several months before hand; I prepared pulverized manures and vegetable mould; I dug trenches around the trees to be transplanted; I had ropes fastened some fifteen feet high from the ground to the body of the tree; this rope was drawn upon by oxen, who pulled the tree down upon the wagon axeltrees, ready to receive it; hauled it to its hole; set it up by hands and poles; laid all the roots out smooth and straight, then imbedded them perfectly in the prepared soil and manures. It is better to do all this in the fall than in the spring.

Mr. Meigs exhibited to the Club, Stuart's drawing of a full grown tree being transported on a wagon.

Mr. Fleet remarked that it might be important to leave the limbs as near as possible to the roots, to keep up a more intimate and active connection with the roots and leaves. Tall trees, with the limbs at the top, will not grow as well.

Chairman.—I transplanted an Elm tree of about four inches in diameter, thirty years ago. I left all its top on; I transplanted with a ball of frozen earth about its roots. That tree is now a handsome one, and is about one foot in diameter.

Mr. Carter.—Some fruit trees carefully transplanted, will bear fruit the same year. I have seen the Apple tree do it. In our western country and in Canada, it is common now-a-days to select a fine group of young Sugar Maple trees, and then to cut down all the forest trees about them, so as to give the group the necessary air and sun. After one year these are transplanted to the required spot. Some of these trees become what are termed sugar bushes. Owners of trees hire them out to sugar makers at so much a tree. The makers bore a hole in a tree with a three-quarter inch auger, *on the south side*. The sap of the hickory tree is sometimes used to make molasses; it does not

make sugar, nor is it as plenty as that of the maple. They never plug up the hole; the air soon dries and heals it. I have seen an old Apple tree safely taken out of the line of a road, with a good deal of its top cut off, bear some fruit the following year. Currant and Gooseberry bushes can easily with care, be transplanted, and bear as much fruit that year, as in any other. It is not good to transplant after the sap begins to move.

Dr. Underhill.—And we must observe that the sap moves in different trees and plants, at different times.

Mr. Elliott.—In New Jersey a friend of mine, tired of the poor growth of his gooseberries, and the mildew on them, attributed the evil to the great heats of our summers, and by way of protection put salt hay all around his bushes, and had good fruit always afterwards.

Dr. Underhill.—The hay no doubt checked the rapid evaporation.

Mr. Carter.—I was plagued with the mildew, and tried the following remedy, viz: I dug holes about two feet distance from the gooseberry roots; filled them with manure and covered once with earth; I had no more mildew there.

I cover currant bushes with straw in the fall, and pick currants in good condition during winter while the snow is deep about the bushes, I think the fruit would be good through the winter.

Mr. Elliot.—Perhaps the holes you dug operated as so many drains to your gooseberry bushes.

Mr. Carter.—Mildew would be a good subject for the Club to discuss.

Dr. Underhill.—Certainly. I propose it. "*Mildew on plants and fruits, and the remedy.*"

Mr. Meigs.—I have often noticed that persons hired to transplant trees cut them up as much as possible, to save themselves trouble in transplanting.

The Club then adjourned.

H. MEIGS, *Sec'y.*

March 19th, 1850.

Judge ROBERT SWIFT LIVINGSTON in the chair. HENRY MEIGS, Secretary.

The Secretary read the following papers and translations :

Annales de la Societe Centrale d'Horticulture, Paris, 1849.

PINE APPLE.

Extracts from the Report of the Committee charged to visit the Pine Apple culture of M. Gontier, at Montrouge :

M. Gontier has conquered all the difficulties of climate, and has produced pine apples of the richest character. This fruit belongs to the botanical order of the Bromileacea, which flourishes in the tropical regions of Asia and America. They were first introduced into Europe by a Frenchman, residing in Leyden, who brought them from Surinam. We do not know in what year, but we know that the first pine apples obtained in France were served up to Louis XV, in 1733. The cultivation of them languished up to the time of the revolution in 1789, when it completely ceased. It did not begin again until about 1825. We may now say that it has attained a high degree of perfection. Pine apples are produced by setting out the crown of them, and also from the suckers at the foot of the leaves. M. Gontier finds that a strong crown is better than a little sucker. The larger the crowns or the suckers, the better the new growth of the pines.

The whole process is described, and its success is such, that M. Gontier produces pines of the weight of *ten pounds*. The average times of their growth, from the crowns and suckers to perfection, is about two years.

He has pines from *Cayenne*, both the thorny and without thorns. The *Prevideur*, the *Mont Serrat*, the *Count of Paris*, the Jamaica Violet and the *Enville*, all of which are distinguished for the vigor of their vegetation, and the size and beauty of their fruit, and the sweet odour with which they perfume his conservatories.

The following letter was read from Mr. Hector Gilzam, of Flatbush, in relation to the cultivation of Madder :

Flatbush, Long Island, March 16th, 1850.

To the American Institute at New-York.

In accordance with my duty, I send some madder seed of my raising, and also some of the unpulverised madder raised by me on Long Island, and a description of the method of raising it in the United States of North America, which can be done with great profit, close to the Atlantic, and to the gulf of Mexico.

Madder seed must be planted in New-York and New-Jersey, in the month of April ; and in the States of Delaware, Maryland, Virginia, North and South Carolina, in March ; and in Georgia, Alabama, Mississippi and Louisiana in February ; and in Florida in January. Ridges must be made in the field, and the madder seed planted on the tops of them. These ridges must be one foot a part ; each seed planted one inch from another, and as the plant grows to a foot long, we pull up as many as will leave the rest two inches a part ; they must be kept clear of weeds. Save the seed as it ripens for planting next year, and pull up the roots which are the mother plants. When these are transplanted they throw out sprouts a foot long, then take three fourths of them from the mother plant, set them out in flat beds, two feet broad ; these sprouts will furnish the pure madder, this will come to maturity in fifteen to sixteen months, and will yield from two thousand to three thousand pounds per acre, of the best kind. All the expense of the raising ; such as the land rent, interest, labour of all sorts will not be more than four cents a pound. In some of the States mentioned, but two to three and a half cents.

The secretary read a letter written to him by Lieutenant James H. Rowan of the U. S. Navy, dated Spezzia Bay, on board the U. S.

ship Constitution, and a box of seeds from Egypt. The seed of the black seed cotton, sesame, flax seed, beans from Upper Egypt, Lentils.

On motion, ordered, That the thanks of the club be presented to Lieutenant Rowan, for this valuable present.

A paper signed T. B., chemist was read, viz.

New-York, March 6th, 1850.

To the Farmers Club.

Perceiving in one of the daily papers the proceedings of the last meeting, relating to agriculture ; permit me to give my theory and experience in grape culture. I manure with a compost of animal charcoal, obtained in any quantity from the factories, of prussiate of potash, who are glad to get rid of it. I place this a few inches under ground near the vine roots, and let it remain for two weeks, if the weather is fine. If the atmosphere has been too dry, I place a handful of *chloride of calcium*, (muriate of lime,) on the surface of the ground around each root, which by absorbing moisture supplies the vine with water and nutrition. Chloride of calcium exposed to air, deliquesces (melts,) readily, and is soluble in little water ; when mixed with fresh fallen snow, it produces a cold of forty degrees below Zero.

I coincide with Dr. Underhill in his theory of the growth of plants. Where soil is too moist, a mixture of alum, clay, calcined bones, plaster of Paris, and sulphate of ammonia, in equal parts, will be found very useful. The theory of the above is, that the clay absorbs the surrounding moisture, and forms with the plaster, a crust almost impervious to water, while the ammonia and bones nourish the plant.

Dr. Antisell.—The red color in madder is due to the presence of lime in the soil, without which it fails.

A report on the subject of agricultural employment for the numerous immigrants arriving here, was presented, and on motion referred back to the committee to be disposed of in some other way, than

adoption by the Institute; it being remarked by the President, General Tallmadge, that the Institute cannot in any manner interfere in the action of the constituted authorities of our State or cities.

President Tallmadge was much pleased with the present of seeds from Lieutenant Rowan, and recommended a like course to all our enterprising men, who visit every land. And also special attention to the grapes of the Pacific coast, California, Chili, &c., that those vines of which we hear praise, and being American, will doubtless flourish here, may be brought here speedily for trial.

Subject for next meeting. Grafting, Inoculating, Madder, Mildew, Seeds and Planting, and the Grapes of California, and Norton's Seedling Grape.

The Club then adjourned to this day week.

H. MEIGS, Sec'y.

March 26, 1850.

Judge ROBERT S. LIVINGSTON in the chair. HENRY MEIGS, Sec'y.

WU

The Secretary read the following translation made by him from Cicero's ("*de Senectute*") Essay on Old Age.

I am fond of retracing to the beginning the noble science of agriculture, and take great pleasure in the fact that from the beginning the best and wisest of men have always been devoted admirers of it.

MA

Among others I love the ideas of Cicero, and I present here some extracts from his "*de Senectute*," (Essay upon Old Age,) which I translate as follows :

Delights of Agriculture.—"I come now to the delights (voluptates) of farmers, with which I am incredibly charmed ; and these are not at all impeded by old age, and seem to me to be in the most close connection with the wisdom of life. The soil, always ready

to receive our government, always able to give us back all things with usury ! How can I give an idea of the pleasure which I enjoy in the planting, growing, and fruit of the grape-vine. I cannot satiate myself with these delicious matters. What admiration have I in beholding the growth of the most minute seeds—of cuttings, grafts, roots, transplants, layers, &c. How beautiful the way in which the grape vine manages to lift and sustain itself from the ground by putting its fingers (tendrils) to clasp hold of the limbs of trees, climbing and looking like a serpent—and how we use the steel to prune away its useless shoots.

“How I admire the deep and thorough digging of the soil, the pulverizing of it to render it fit for plants. Irrigation, too, where that is required—and what can I say too much in favor of perfect and thorough manuring. I have written fully on this subject in my book on rural affairs. It appears singular to me, that the learned Hesiod said nothing about this book on agriculture. But Homer, who I think was some ages before him, speaks of manuring as well as cultivating the soil. The grain, the grass, the vines, the gardens, the apple orchards, the pasture of the cattle, even the flowers which supply the bees with honey, all need proper manuring. As we grow old we become loquacious. I do not pretend to be free of that fault, but I talk of that which has continued with me to old age, agriculture.

“What noble men have passed their lives to great age upon small yet beautiful farms, made and preserved by their own skill and personal labor. Remember Marcus Curius, to whom the Samnites brought as a bribe a large weight of gold, which he refused, (repudiated,) telling them that he considered that there was nothing important in having much money ones-self,—that he preferred commanding those who had it.

“My opinion is, that agriculture is wholesome for the whole human race—for the great pleasure of it, for the abundance and variety of food produced by it, and for its intimate relation with the worship of God.

“A good and industrious farmer has his barns full of grain, his wine-cellar full of delicious wine, his olive oil, his dairy; his whole farm is full of riches—it abounds in cattle, pigs, goats and kids, sheep and lambs, poultry of all kinds, full of milk and cheese and honey, bacon and ham, and also wild game. Amid his green fields he has noble shade trees under which to recline in very hot weather, and clear streams of water for bathing. He has arms for defence also in his house; he plays ball, he swims, he runs foot races, has first-rate horses, and when he is too old for such sports, he enjoys those of the young.”

Mildew.—Mr. Meigs read extracts from several writers on the subject of mildew. These agree that what is generally called mildew, is owing to excess of moisture and want of ventilation. That a hot sun after a heavy rain, is apt to produce it; that covering the earth under the gooseberry bush with hay or straw, (some say salt hay,) prevents a mildew. That when wheat is struck by mildew it is called blight or rust. This is most fatal when it appears at the time the grain is forming in the ear. If it appears at an earlier period, the product of the plant will be lessened, yet with fair circumstances afterwards, there may be good grain and a middling crop; and mildew is apt to be followed by insects, to whom some have attributed the disease. Mildew is unknown in dry weather. The London Horticultural Annual of 1847, recommends dusting mildewed plants with flour of sulphur.

Miller says that in England the east wind is dry, which stops the pores of the plants and prevents perspiration, whereby the juices of the plant are concreted upon the surface of the leaves. It is naturally very tough and viscous, and by the heat of the sun becomes more so. The young ears of wheat daubed over with it cannot obtain their proper growth. In the morning before sunrise, let men stretching cords between them, drag over the wheat ears to dislodge the dew, &c.

w

Sagar says that the naked feet of farmers are made sore by the acrid property of mildew, and that when swallowed it attacks the stomach, produces pimples on the tongue, loss of appetite, desiccation

of the aliments in the stomach, cough and *Dyspnea* or difficult respiration.

In the first volume of the Transactions of the New-York Society for the promotion of Agriculture, Arts and Manufactures, 1801, Mr. L'Hommedieu stated that a fine piece of wheat being lodged by heavy rains, and perceived soon after to be infected with mildew, was cut about three weeks before the usual time of cutting, although in a perfectly green state—it lay spread abroad upon the stubble until it was dry enough to prevent its caking in the sheaf. The grain was found to be of a fine color, small—but the heaviest wheat grown on that farm that season, and the straw was remarkably bright, not a speck upon it.

Young, in his Annals, says, when the wheat stem is seen to have a very particular cast of color of bluish green, it is surely affected.

Mr. Elliott.—I have given much attention to mildew in my agricultural labors. When the wheat is attacked early it suffers no great harm, but if struck when the ear is formed, and that too just under the ear, it becomes highly injurious. I then cut it as early as I could. Mildew appears to me like sap exuding from the plant—that sap which would otherwise enter the grain. I have sometimes lost a third of my wheat by it, and it seems to strike where the land was richest and best tilled. I have by bad weather been driven into February to sow my wheat—of that crop I could not find one good head on many acres, and what we left for gleaners was left by them. When wheat is mildewed, cut it early. I know of no other remedy. The greenest wheat I ever saw cut in my life, produced very fine grain and heavier than other wheat.

Judge Van Wyck.—Mildew is an ancient disease,—it is mentioned in the Old Testament. The Romans complained much of it by the name of Rubigo (rust.) England is much troubled with it, owing to her moist climate. It appears to be more destructive on calcareous than on other soils—not troublesome in dry summer weather. Marshall recommends common salt. Sir John Sinclair and Sir Humphrey Davy recommend sprinkling the plant with solution of salt. Mildew is not

so bad on the sea coast as in the interior, and this is taken to be proof that salt air is unfavorable to it. The average annual loss of wheat in England by this disease is estimated as great as from five to seven bushels an acre. A certain preventive would be worth millions of pounds sterling a year. Heavy fog, stillness—*muggy weather*, (if we may use so common a term) favor the production of mildew. Some consider the disease as a cause preventing the sap from reaching the grain, often spoiling the straw ; some believe it to be a fungus, which draws away the proper nourishment of the grain.

Dr. Underbill.—There are several diseases, generally carelessly called Mildew, or Blight, or Rust—very different from each other. What the absolute cause is, is difficult as yet to decide. Where there is in plants unusually large quantities of sap, it is not properly digested, often gorges the sap vessels, and occasionally bursts them ; this is a cause of mildew. Sudden rains often give a sort of plethora to plants, and cause much ill-prepared sap. In such cases the interior of the gooseberry swells, and often bursts the skin, which when mildewed, is *hide-bound*. For the gooseberry when attacked is generally about two-thirds grown only.

I have sometimes found fruit to burst without the mildew being upon it. Some say that mildew is like the misseleto—a parasite. It is an effect of hot sun on very damp soil. I have put clay on the loose and porous soil of my Croton Vineyard, in order to cause heavy rains in some measure to run off. Having been troubled with mildew, I discovered that my tall close forests surrounding my vineyard, and the tight fences, and the close hedges, all prevented a free and proper circulation of air. I have altered all that. I have opened the forest, taken down the fences, and opened my hedges by trimming them several feet from the ground. Before this ventilating system, by which I have let in even the heavy blasts of air which I had formerly shut out, I have already saved hundreds and thousands of pounds of grapes.

One said, make a hole near a bush, and there will be no mildew. Now that hole receives the water drained from the soil about the bark. It is a drain. The fogs and mists of England are favorable

to mildew. Where is such moisture we find slugs plenty as well as mildew. Grapes are sometimes, in heavy rains after great heat, apt to burst. The Isabella and Catawba grapes are attacked in different manner, not by mildew—that is of a light grey color, and fruit by it is made hide bound.

Mr. Elliott approved of the method of placing *salt hay* around gooseberry bushes, and that deep ploughing and good tilling were good preventives of mildew.

President Tallmadge accorded with the opinion given by Dr. Underhill relative to mildew. We never see mildew where the soil is poor. Rich soil with heat and moisture, produces it. My impression is, that the prevention of mildew is caused by covering the surface with any dry straw, whether salt or not. The covering checks the escape of effluvia from the soil, and giving also a perfectly free ventilation. When the grape vine ascends *tall trees*, its grapes are never mildewed, so that it seems that this disease attacks only near the surface of the land. We find but little land entirely porous to a considerable depth; usually we find within the depth of a foot or so, primitive earth, clay, gravel, &c. which is sufficiently close to prevent the rain water from filtering through it rapidly. When the sub-soil happens to be a stiff clay, then the soil is saturated by rains, and retains the wet long—very often to the serious damage of crops. A like result is perceived where plants are put into vessels without holes in the bottom, to allow water freely to pass. Such is now the fashion of our flower pots. All these matters point directly to the usefulness of under-draining in all cases where there happens not to be a loose subsoil.

Chairman, I shall be pleased to hear you on the subject of the grape vine.

THE VINE.

President Tallmadge. Being called upon to speak of the Vine, I comply cheerfully, and shall first confine myself to those of America. The very costly experiments made by Americans on naturalizing here the grapes of the old world have all proved to be total failures, and

we are constrained to rely upon that native stock, which on our Atlantic border has already, thanks to a few patriotic citizens, been made to appear as luxuries in our markets, and is already in market by thousands (Longworth's) of bottles of valuable wine. And it has been the result of industry in the establishment of Vineyards of these Natives, and by enlightened management of them. The Isabella and the Catawba are already established in public favor, and are spreading their vines with redoubling speed through our land. So that we are in so short a time advanced to an epoch in American grapes, which must in another shorter period, fill our land with these delicious and healthful fruits, and cause the banishment of those dangerous distillations which so unhappily are made to take the place of cheerful, healthful wines.

I am gratified to learn, that on the Pacific Coasts of the Americas, are found growing native grapes, said to be of fine quality, which it is our duty and pleasure to cause to be brought to our Atlantic Coasts, *warranted (as American)* to succeed, and be acclimated, where no European can. The Institute has made arrangements to procure them.

Our forests bear many grapes, but few of value. Some give bunches containing four or five grapes, each as large as an ounce ball, but of indifferent character now, as fruit for our tables, whatever art may at a future day, make of them. California may yet give us grapes worth more by far, than all her gold. I will mention, however, one of our Atlantic grapes which merits our attention ; it is called the *Bland*, and resembles the Catawba. We are looking to Valparaiso for some grapes, reported to be very fine. The President proceeded to speak of the frigid, temperate and torrid zones, and the difficulty of causing the vegetation of one to flourish in the open air of the others. The evergreens of the torrid zone, so peculiar that they need no rest, urged on by the climate to constant foilage, flower and fruit.

How different from the vegetation of the other zones, which cannot live without an annual sleep in winter.

But art can be used in our zone to produce great amounts of delightful fruit of various climates, and at a reasonable expense. I beg leave to describe a vinery which, at our summer residence on the Hudson, we have constructed without artificial heat—which yields some bunches of foreign grapes upwards of two feet long, and weighing six pounds a bunch. This Institute has granted a premium for them. This conservatory is built of a frame work, curved on the summit, covered entirely with strong glass. It stands north and south, and so that it receives the rays of the sun all day. This conservatory is supported by rows of posts, which form so many supports for the vines. At the bottom of the edifice, all around it, are boards or planks on hinges, which can be raised at pleasure, to admit air along the surface of the soil; no wall at the foundation to prevent the vines from running out of the conservatory into the adjacent land; on the top of the building, similar boards or planks capable of being opened at will to suffer air to escape. This becomes often necessary on account of our own hot sunshine. We have found the interior as cool or rather more cool than the open air; so great is the ventilation resulting from the arrangement just named. We have found the growth of vines outside to be from three to four feet in length—same sort inside grew ten, fifteen and even seventeen feet in a year. In the second year, the outside vine grew from five to ten feet from the one bud left near the ground, and covered with earth during winter, while those inside grew to from twenty-five to thirty feet. This glass edifice makes, in truth, summer of from six to seven months long, which enables us to raise our foreign grapes to perfection, while such is the character of our climate, frost often leaves us a summer of only three months. In the second year the vines set some fruit; we let only one bunch grow, in order by that to ascertain the variety of the fruit. In the third year we find twenty to thirty bunches set, of which we permit a half a dozen only to mature. In the fourth year we let it double or treble that amount—still we take away some. Vegetation requires the auxiliaries of science as well as industry. Italy, so famed for her grapes, would lose the premiums at our fruit conventions, for New-Bedford, Boston, New-York, and many other conservatories, can take them away.

Speaking of science applied to vegetation, I wish to be understood as specially indicating the utmost importance of so compounding soil of such elements as are known to be necessary, some for the growth of the wood, and others, that of the fruit, and which chemistry by analysis will direct. When we have made our little vintage, we then give free ventilation, so that our vines may, during the winter, take their necessary repose.

We have been told that England has produced bunches of grapes weighing thirty pounds. If so, it would require two men to carry one on a pole between them as did the bunches of Canaan. But a bunch two feet long and of six to seven pounds weight would soon weary the arm extended, necessarily, to carry it clear of the ground. A dead horse was buried in the out border, sixteen feet from a vine, and we found the roots to reach it in the second year. Our grape house is eighty feet in length, and we never use artificial heat in it; the sun upon the glass will keep the temperature within ten to twenty degrees of Fahrenheit higher than that outside, and which is regulated by ventilators. We have in it eighteen varieties of grapes.

It is our belief that this modern improvement in the vinery, as distinguished from the greenhouse, is coming into use, and will produce grapes at a cost so small as to bring the fruit into common use.

This plan of distributing perfect seeds and grafts I like, and shall order some from our place next week.

Subject for next meeting—grafting, inoculating, seeds and planting.
The club adjourned to this day week.

H. MEIGS, Sec'y.

Farmers' Club, April 2nd, 1850.

Judge ROBERT S. LIVINGSTON, in the chair. HENRY MEIGS Sec'y.

The Secretary communicated the following articles: One, relative to the growth of clover in and near the tropics. He observed how striking the absence of green pasture in those latitudes, to a northern

man ; how poorly cattle and other stock are fed compared with those of the north. Great efforts have long ago been made to make clover grow there in vain ; it will not bear the severe heat, &c. About three years ago, Governor Brown, of Florida, received from the Patent office some clover seeds from Chili. He planted them, but had no expectation of success, notwithstanding he is most agreeably disappointed, for this Chili clover sustains the severities of the climate and flourishes ; he justly considers this to be a means of adding greatly to the wealth of Florida.

The Secretary reminded the club of the very singular difference of climate production, vegetable and animal, between the northern and southern hemispheres. That it is strangely observed that plants flower in open air, when the temperature by Fahrenheit is several degrees below 32° the freezing point ; strange forms of animals are found in Australia. That it is observed that some diseases of the northern hemisphere never appear in the southern ; that it has been observed by our learned friends, Redfield and others, that gales proceed in opposite motions in the respective hemispheres, circling from south, northerly in our hemisphere, and from north, southerly in the southern half.

Thus it appears that a southern clover will flourish in the northern tropics, while our northern clover will not.

The secretary read an article from the Paris Agriculture, relation to crop of sesame in Algeria. It states that an acre well cultivated, will yield eighteen hundred pounds of the grain ; which yields nine hundred pounds of oil. That it is destined soon to supply all northern Europe with oil.

President Tallmadge, intimated some months ago, that observations upon the subject of diseases in the two hemispheres, inclined him to suppose, there were diseases in each not capable of propagation in the other. That cholera had not yet crossed the equatorial line, from north to south.

Mr. Meigs added, we have a treatise on Asiatic cholera in our library, which contains maps, showing the course taken by cholera, and it what periods of time, and with what speed from place to place, around the earth nearly, all in the northern hemisphere. Now we have not heard of a solitary case of Asiatic cholera, in any spot south of the equator. So far then the opinion of the President seems just.

m

Mr. Elliott inquired if there was a clover known by the name of tree clover?

Judge Van Wyck supposed that some very tall clover may have been so denominated.

Mr. Meigs.—It is probably an error formed from the botanical name, trifolium; in French trefles, trefoil, three leaved; the term *tre* may have led to the mistake.

Dr. Underhill, of Croton Point.—I have remarked in my orchards the singular fact, that while the earth was frozen, and the apples fallen on it frozen, the apples on my trees were untouched. This may be due to the power of the roots, (reaching deep below the surface,) of deriving caloric from beneath and supplying enough to the tree, its fruit &c., to countervail the frost in the surrounding air, and on the surface of the ground; the observations of modern times show that temperature rises, as we descend from the surface of the earth.

Mr. Brown.—From Magellan northerly the animal and vegetable kingdoms exhibit a greater analogy to tropical life, than any in the Northern Hemisphere. Darwin, the naturalist, attached to the great Survey of Fitzroy and Beechey, found the South American Lion, the *Puma*, as far south as latitude 47° , and the *Palms* flourishing in 45° on an elevated Plateau (or level) extending north to Paraguay. Darwin says that this immense plateau is what is geologically called an *Upheaval*. It shows diluvial action; the ancient Ocean shores are distinctly observed about its bases; rivers have cut their deep passes through it. These facts are important, and the scientific deductions to be made from them. This plateau is connected with the great chain of Andes. In all this region of plateau vegetation is scarce and

very peculiar, so much so that it seems to partake of *the character of the plants found in coal formations* ; for instance, there is among others, the *Tree Fern* so often found in coal formations.

Dr. Underhill.—An opinion prevailed for a great length of time, that clover would not thrive as a fixed crop in Virginia. But late experience has established it as an excellent one for that quarter of our country.

Mr. Bowman.—On my farm in Virginia I have flourishing clover fields.

Judge Livingston. -I have often sowed the red clover in October successfully.

Dr. Underhill.—I sow it with oats, oats first, early, well harrowed in, then over that, clover well brushed over. I am always successful. I sow from the first to the twentieth of April.

Judge Van Wyck.—Sometimes timothy seed is sown successfully upon the surface of the snow.

Dr. Underhill.—For a crop of hay, I prefer to sow timothy *alone and late* in the season.

Mr. Bowman.—I have done well with it, sowing it, on the *29th of May*.

Mr. Elliott.—I never sow clover and timothy together ; my method of broad cast is to proceed with it so as to return upon my track, covering about six feet wide, quite evenly. I have found the crop very uniform.

The Chairman asked Dr. Underhill to exhibit grafting and budding to the club.

Dr. Underhill, took a few of the thousands of grafts, brought to the club by him from Croton Point, and performed the operations of cleft,

whip, inarching, &c. For cleft grafting, use a saw to cut off the part of the stock to be grafted, then cut the section smooth with a very sharp knife ; take a chisel ground on both sides so that its edge is in the middle of the blade, use a mallet to drive it the suitable distance for a proper split. Do this on one side of the centre or pith, never through that. Have a graft cut smooth to a wedge ; with a smaller chisel open the cleft and insert the wedge, bringing as much of the bark of the graft as you can in close contact with the bark of the stock. Graft upon a stock not larger than my wrist, and on smaller. When your grafts are properly set in, take the compost of bees wax, tallow and rosin, which are united in such proportion that they may be made plaster, by the warmth of the hand, but not so as to melt and run in hot weather ; apply sufficient of this, all about the stock and foot of the graft, to cover up perfectly the cut parts. The Dr. proceeded to describe the whip grafting, by approach and inarching. He then proceeded to state the mode of budding practised by him ; he described the condition of the sap of fruit trees, in the months of August and September ; that at this season of the year, it has acquired its richest condition, is more viscid, and is about to undergo the change to woody fibre, to form another ring of wood. At this time I bud my stocks, preferring to insert the bud, in the north or east side of the stock ; I make a transverse cut with a very sharp knife through the bark, then from the middle of that cut, I make one down the stock, long enough to admit the bud ; these cuts then resemble letter T. I use a very keen knife to cut a bud off its branch, cutting a little wood with it. I take the little piece of wood out of the bud very carefully, because it is counted with what I call the chit, in which alone vitality exists, for if the chit be wounded at all, the bud becomes utterly worthless. Having the bud all prepared, I lift up very cautiously the bark on the sides of the T, and do not disturb the sap. This operation is done with the handle of the knife, which is made of bone or ivory, and shaped proper to raise the bark. Bud after rain, for then the bark is more easily raised to that purpose ; I then insert the bud. I then cut off the upper end of the bark of the back of the bud, exactly on the line of the top of the T. This allows the remainder to fall into contact with the sap, and so form an even surface of the barks of both the stock and the bud ; I then use bass to confine it passing the ligature obliquely above and below the bud, never on it, a few times around, and then

tie it, If the bud proves to be of good growth, cut the bass ligature off, *in March following always*. Then in June cut off the stock just above the bud, with a sharp knife and in the direction from the north or west, on the opposite side of the bud, sloping downward southerly. This cause rain to fall off this slope from the bud if sloped towards the bud the water injures it.

Mr. Meigs, had an opportunity on one occasion to see the malice of a villain, disappointed because he had barked his neighbours apple trees in August. Those trees seem to prove that, (such is often seen,) Divine Providence caused the fruit, to be even better than it would have been, without the barking, and a beautiful smooth new bark was found.

Dr. Underhill remarked that now budding is preferred to grafting in all small stocks. The disappointment felt by those who buy in our market, trees said to have been budded ; but which prove after some years, never to have been, is very severe. It often happens that the nursery men do not know that their unbudded stock are taken to the market by their men ; but it is so! And is an injury not only to the unfortunate buyer to the honest masters who never bring a false tree to our market.

The Secretary read from some of our best authorities, extracts relative to grafting.

“Grafting has been known and practised from the most remote antiquity—naturalists have not agreed as to the origin of it. Theophrastus said that a bird which had swallowed a fruit whole, left the pit in the cavity of a tree where it was rotten, then being watered by rain it grew and so became a tree of a different kind from the stock.”—“Pliny says that a farmer wishing to make a palisade in his farm matted the bottoms of his palisade with the trunks of ivy in order to make it stronger and last longer. The effect was that the stakes of the palisade became engrafted with the trunks of the ivy and produced large trees, and that this caused attention to grafting.”

“Many have talked of changing the species of fruits by grafting on another of the same class ; but there is but little hope of that by ever so many repeated graftings. Almonds and peaches may by many changes in the graftings and by interrations of the stones of the peaches, and of the shells of the almonds, and by terribations of the stem and root here and there, alter their nature so much as to cause the coat or pulp of the almond to approach the character of the peach, and the peach may have its kernel enlarged to a kind of almond.” “Du Hamel tried fully all the experiments for grafting trees on others of a *different genus*—they all failed. Peach grafted on plum does well and lives longer than in its native state.”

Subject for discussion, grafting, budding, seeds and planting.

Grafts and cuttings were then distributed, of which Dr. Underhill supplied some thousands from Croton Point ; some also from Mr. Pike of New Jersey ; some by Mr. Pell of Pelham ; seeds also from Roswell L. Colt of Paterson ; also from Egypt, sent by Lieut. Rowan of our navy, and some from Dr. Magowan of China

The Club adjourned.

H. MEIGS, *Secretary*.

April 9, 1850.

HON. ROBERT SWIFT LIVINGSTON in the Chair. HENRY MEIGS, Sec'y.

The Secretary read the following translation made by him from recent volumes received from Paris, (viz :)

DAHLIA.

The Dahlia, to which unhappily nature has refused to give the slightest perfume, is notwithstanding at this time, next to the rose, the

[Assembly, No. 199.] 33

richest and most important ornament of our gardens, and this pre-eminence is owing entirely and completely to Horticulture. The Dahlia now sought for by amateurs is not precisely (as is well known) the work of nature. In fact, in the year 1789, when it was carried from Mexico, its native land, to Spain, and placed in the Botanical garden of Madrid, the flower had neither the roundness of or the richness of color which are now so much admired. It presented only two rows of petals in its circumference, and had in its centre a multitude of little yellow flowers of no brilliancy. In this condition the dahlia attracted very little attention, but now, thanks to the perseverance of man, this plant is at present actually placed in the first rank in our collections.

But that change, we must acknowledge, has been produced very slowly ; during the year after its introduction into Europe, the dahlia presented no sensible modification, its colors had but little variety. Only three were known, and they served M. Cavanilles to establish its species, the rose, the purple and the scarlet, which remained confined to the garden of Madrid until 1802. At that period a French physician of the name of Thibaud, carried to Paris a single one of each kind, and placed it in the Museum, where M. Thouin put them into pots, and these under glass. Here, as in Madrid, the dahlia was considered to be more important as an eatable root, than as a flower, much less a conquest for Floriculture. But they multiplied it within the narrow domain of the Museum, in hope, as Thouin says, to see it flourish in open air, so that it might be employed as a middle flower in the borders of large parterres. So far the administration of the museum had filled its mission. It had propagated it and had indicated the mode of its culture.

A few years later it came into the hands of the flower gardeners, and after it had been proved to be of no use as a root to eat, they began to improve it as a flower. In 1810 some new and important varieties were obtained, the primitive colors began to change for others, the gardeners now had lilac, pale rose, saffron and yellowish, derived from the three primitive tints. These changes began to attract the serious attention of some gardeners, and about the year 1818, they obtained by means of its seed, the first varieties of double flowers.

This encouraged them and from that moment, the dahlia took possession of the domain of Flora ; but notwithstanding this, it is but within fifteen years that (thanks to the gardeners of England) the dahlia has attained that degree of perfection which at this time makes it the first flower of our Autumn gardens. England which had kept until lately the monopoly of it, and had the distinguished privilege of furnishing our Amateurs with some to grow beside their dwarf dahlias, begun to see her trade in dahlias diminish. Now, after persevering efforts, our French gardeners have placed them in the front rank.

The wishes expressed by Andre Thouin, are realized upon the soil of France; the dahlia forms now the ornament of the little garden of our smallest country cottages. But if Cavanilles, Thibaud and Thouin have just claim to the gratitude of Amateurs for having enriched horticulture with the first types of this precious vegetable, it is but just also to share it with Chereau, Guenot, Leroy, Lorain, Miellez, Milcent, Soutif, Voisenou, &c., who have endowed the garden with so many admirable varieties of it, among which will appear in our flower markets, eahlia of white pointed with rose, white with lilac centre, deep white with border of carmine, white with border of pale rose, white pointed with violet, white bordered with purple violet, scarlet of great brilliance bordered with white, reddish violet pointed with pure white, white bordered with deep carmine, &c. &c. &c. These will appear this spring in the Parisian markets.

Letter from Professor Mapes.

Newark, March 31st, 1850.

GENERAL CHANDLER.—Dear Sir ; As you are probably preparing your premium list at the Institute, let me beg of you not to forget the *sub-soil plough* ; those now in general use are not well constructed, and a premium should be offered to induce improvement. This instrument as now made has its wing raised too high at the rear of the plow, and the amount of force necessary to draw it is thus uselessly increased.

The best now made have the wing 4 inches high at the rear, and often 6 inches.

Here you have a vertical cross-cut section of the surface furrow,* and the sub-soil plough cut; the dotted line represents the probable line of disturbance of soil by the wing of the sub-soil plough, and a moment's reflection will convince you, that if the wing be as high as even 4 inches at the rear, that the amount of soil lifted this 4 inches, during every foot of the onward motion of the plough, will be 50 lbs., and thus in passing the length of a single furrow of 100 feet, 50,000 lbs. of earth must be raised 4 inches high, and of course at the expense of the team. The object gained by sub-soiling can be as well attained by raising the wing two inches instead of four, and permitting the wing to pass in a straight line to the point; thus by having a sharper wedge, a clayey or hard pan sub-soil could be readily disintegrated, while the lifting of two inches instead of 4 would cost less than one third the power, the inclined plane over which the disturbed soil passes being easier in addition to lifting the soil a much less distance. I speak feelingly on this subject, having been compelled to use four large pairs of Devonshire cattle to run my sub-soil plow.

You will receive by Day's Express, a bundle of Pear Scions of the finest kind and in prime order; the trees from which they were taken, came from France four years since and fruited last year; you will recognise among them the choicest known kinds, and if the Farmers' Club will distribute them I shall feel obliged.

Since I last saw you, I have been busily engaged in the good cause in New Jersey; for the last six months have delivered four or five lectures each week on agriculture, and our farmers throughout the State are waking up. More than 1000 sub-soil plows are now used by those who never saw them until last year, and in many districts the crops have been doubled in consequence.

I have a list of more than fifty farmers who have raised from 90 to 124 bushels of shelled corn per acre, during the last year, by adop-

* The cut intended here was not received in season for insertion.

ting the improved methods proposed in my lectures of 1848. One friend near Princeton raised 57 bushels of wheat on an acre.

Some accurate experimenters have found that by thoroughly cooking corn, they have realized \$1 per bushel for it, in pork at five cents per lb. Pork may be grown at less than 4 cents by using cooked feed. By reference to the letter of Mr. Jas. Campbell, (*Working Farmer*, Vol. 2. No. 2) you will see that cooked food should be used for cattle, and a portion of root crops with it.

Many new Marl deposits have been discovered in New-Jersey within the last two years, and the farms in their neighborhoods have improved past all account.

The great salt meadows of New-Jersey are also being brought into requisition ; these meadows are deposits of organic matters washed down from the highlands during all time ; by decomposing this muck with Chloride of Lime and Carbonate of Soda, (made by decomposing common salt with Caustic Lime) it passes readily into fermentation, and is rendered proper food for plants. These meadows may be considered as composed of "organic matter not in a state of decay," and they only require proper treatment, and then to be carried back to the highlands where they came from, to render every hill top in New-Jersey as fertile as the bottom lands of the south west.

I have used 3000 loads of this material, and last year raised 24,000 heads of late Bergen cabbages on two acres, and indeed all my crops were equally prolific.

Do induce the Farmer's Club to occupy more time with discussing the merits of modern improvements, and less in repeating those of the ancients. Old wine is good, but old style agricultural rules are only to be tolerated when they happen to resemble those of later dates.

Root crops require attention at this time ; small fruit culture should also receive encouragement ; the consumption of small fruits are increasing, and the least diminution in price doubles the consumption. There are more Strawberries eaten in Cincinnati than in New-York,

and they are raised in that vicinity at *half the cost* of those grown here, simply because their culture is better understood.

The superior kinds of Raspberries (Fastolfs and others,) are daily becoming favorites, and many nurserymen in back counties, are selling the plants at \$25 per hundred, while those of other fine kinds are selling at \$4. Mr. Paterson of Newark, sold of fruit and plants, last year at the rate of \$1400 per acre. Who would raise hay or corn within a few miles of New-York with such an example before them?

Yours truly,
JAS. J. MAPES.

Judge Livingston said he had been very successful in planting the cuttings of the grape, by deferring the cutting of the scions till about the first of May, or until the buds have swollen considerably, and indeed, until the extreme bud on the vine is opening into leaf. The cuttings should have four buds on them. They should be planted in rich ground, well wrought with the spade at least a foot deep, the scions about 9 or 7 inches deep, or the top bud above ground, and the next just below the surface, in rows east and west, and sheltered from the midday sun by a board 10 or 12 inches wide. They will require watering at least once a week in July and August if the season be very dry. The loss will not exceed twenty per cent. I prune in the fall as soon as the leaves have fallen.

Mr. Elliott wished to know if the European grapes would stand the winter of this climate without protection.

Judge Livingston said he has had them do well one hundred miles North of this. In this city they are not protected. The best protection is to bury them 2 or 3 inches.

Mr. Meigs said he set out 100 cuttings, in a trench of two feet deep of prepared soil, a leaning to the north at an angle of 45 degrees. The sap circulates easier, *not one* failed. Dr. Underhill says he loses 70 per cent. Mr. Meigs adverted to Gen. Tallmadge's interesting

remarks in relation to the growing grapes in glass houses, published in the Artizan on the 6th inst. Many valuable grafts were distributed from Gen. Tallmadge, Dr. Underhill and Prof. Mapes ; also Virgalieu Pears, from seed inoculating with the bud from the nursery of C. H. Davis, Cayuga Bridge, now for sale by H. C. Perry, 272, 9th st.

Mr. Meigs.—*Chili Clover introduced into Florida—Sesame.* Governor Brown, of Florida, about three years ago received some clover seed from Chili through the Patent Office, which he planted with much doubt, for all former experiments to raise clover there had failed. The Chili Clover has flourished in all the trying changes of the climate, and appears to be especially adapted to the region of Florida. This is a most valuable addition to the wealth of that State, for it supplies what was much needed, a nutritious grass for stock.

Sesame is cultivated in Algeria. Its oil is destined to supply the whole Northern surface of our hemisphere. Of all the oleaginous plants, this is the best. Properly watered, one acre gives about seventeen or eighteen hundred pounds weight of seed. It yields fifty per cent. of oil. In Marseilles they mix it with olive oil.

Gen. Chandler.—The Institute has received some valuable seeds from Egypt, sent to the Secretary of the Farmers Club by Lieut. James H. Rowan, of the United States ; which have been nearly all distributed. The President of the United States, having received some of them, viz., cotton seed, replied as follows :

Washington, April 2, 1850.

ADONIRAM CHANDLER, Esq.

Sup. Agent American Institute.

Dear Sir.—I have duly received your favor of the 27th ult., and the cotton seed from upper Egypt, for which I am greatly indebted. I hope that I may have an opportunity of giving it a trial this season, but the continued high water of the Mississippi renders it doubtful.

With many thanks for your kind attention, I remain your friend and servant.

Z. TAYLOR.

Judge Van Wyck remarked that the history of the Dahlia reminds us of the great improvement made by intelligent cultivation in other vegetables and plants. The modern Dahlia is now called King, while the Rose is styled Queen of flowers. We ought to persevere in our efforts to improve all useful and agreeable plants.

Rev. Mr. Elliott.—I prune grape vines in November. I set out the cuttings as soon as cut.

Chairman.—I have taken cuttings with young leaves on in May, and succeeded well in growing them. I generally lose some 25 per cent of those I set out, I put them about six or seven inches deep. Two buds down, one just under the surface and but one out.

Mr. Elliott.—I set them in sixteen inches and incline them about thirty degrees. Will European grape vines stand the winter here ?

Chairman.—They live at my country seat 100 miles up the Hudson River. To carry them safe through the winter, I cover them three or four inches with earth, (laying them down of course.)

Mr. Meigs.—I made a deep trench according to the plan recommended by Columella eighteen hundred years ago. Bones, ashes, ripe manure, all well mixed by stirring. I set cuttings leaning 45 degrees to the north, (the trench being north and south.) I hardly lost one of them.

Judge Van Wyck.—We had an opportunity last fall to taste the grapes from the cold vinery of Gen. Tallmadge, and we found them of the first and largest growth, and of delicious taste.

Meigs.—Some men of my age think it hardly worth their while to plant vines and trees. I beg to quote an Oriental tale, as an apology for us *old men* in our zeal for agriculture generally.

A Sultan of Persia attended by his vizier, guards, purse bearer, &c. saw a very old man setting out a young fruit tree. He saluted him and asked his age, the old man replied *four years*. An attendant checked him for speaking thus to the Sultan. But he observed, my long life had been passed in the ordinary idle way of man. It is only four years since I began to plant for others, as others have before planted for me, and I account all my past years as nought except the four. Good, said the Sultan, and the purse bearer, as was customary when the Sultan spoke approbation, immediately handed a purse of a thousand pieces to the old man, who remarked, other men's trees require many years to yield fruit, while mine produce it as soon as planted. Bravo, said the Sultan, and ordered him another purse of a thousand pieces. And sire said the old man, other men's trees give but one crop of fruit in a year, while mine give me two. Bravo, said the Sultan: Adieu, if I stay here your worth and wit will hurt my treasury.

Grafts, cuttings and seeds were distributed.

Subject for next meeting, seeds and planting, grafts, cuttings &c.

The Club adjourned.

H. MEIGS, *Secretary*.

April 16th, 1850

JUDGE VAN WYCK in the Chair; HENRY MEIGS, *Secretary*.

The secretary read the following extract made by him from the voyage of Juan D'Ulloa.

The King of Spain commissioned Don George Juan and Don Antonio D'Ulloa, in 1735, to visit and examine South America. They examined the famous beds of guano, used by the Peruvians as manure.

They say that "many persons supposed it to be a natural earth, for on boring into it they found it the same at the bottom as at

the surface ; but our travellers say that guano is the Indian name for dung in general, that it is the dung of sea birds which abound here in a very extraordinary manner. These birds after spending the day in catching their food in the sea, repair to the islands near the coast, to rest during the night ; and their number being so great as entirely to cover the ground, they leave a proportionable quantity of excrement or dung. This is dried by the heat of the sun into a crust, and is daily increasing so that although great quantities are taken away, it is never exhausted. This guano is used by the natives to manure their maize, (Indian Corn.) A little of it is put near each stem and immediately watered, and the same watering as often as necessary ; it is found greatly to fertilize the ground. It is also used in fields of some other grain, *but never with wheat or barley*. Vast quantities are yearly used in the agriculture of the country.

“The fish consumed by the *guanoes*, (as the fishing birds are called) are anchovies, the shoals of which are beyond all comparison. Many of these birds are called *alcatraces* ; they are a kind of gull.

THE GRAPES

“The grapes at Lima are of various kinds ; and among them one called the Italian, is very large and delicious. The vines extend themselves on the surface of the ground, which is very well adapted to support them, it being stoney or full of sand. These vines are pruned and watered at proper times, and they thrive remarkably without any other care. No other culture is bestowed upon those designed for wine, but none of the grapes near Lima are used for wine ; the demand for them for the table being too large.”

The Secretary observed in reference to planting seeds, that a very fair and careful experiment on planting wheat was made near Paris a few years ago, which led distinctly to the depth of about one inches and a half for best and greatest crop. That he had for a great many years planted corn about half an inch deep with great advantage to the crop. That he had often observed that deep planted corn comes up often yellow and remains unfolded for some days, while that planted very shallow comes up green and unfolds leaves broader than the other, and stretching them almost horizontally over the surface. That some

of our modern farmers seem to think that deep tillage is a modern invention ; that is as great an error as many others as to the practice of olden times. We do not yet even succeed in architecture in many important points, as well as the Greeks did in the days of Pericles ; we built for the accommodation of our Congress a Hall for each House, Senate and Representatives, in the form of the *Odeon* of Pericles instead of the *Forum*. We are endeavouring to imitate their statuary. We have commenced permanent roads like those of old ; the Appian, Flaminian, &c. We have just began to transmit intelligence by rail-roads, about as rapidly as it was transmitted in Assyria, in Greece and in Rome. The select horses ran at full speed, a few miles each, the news was handed to another rider ready mounted, who went off at full speed, so that the express moved on an average nearly thirty miles an hour ; on its arrival at Rome a person employed for that purpose read with a loud voice, great numbers were ready to write down the news, they then hastened to the various sections of the city and read with loud voices to the crowds assembled at these *news places*. Thus no time was lost in setting up types, so that all Rome got the news in half the time we now get it by rail-roads, through the printed Extra. The Electro Telegraph is ours, the old folks knew nothing of that.

As to the deep and thorough tillage, the French Agricultural Society felt great surprise about four years ago, when a French translation was made from the excellent work on agriculture by an Italian named Torello, written *three hundred years ago*. The doctrines of this book are not now surpassed.

Mr. Pike.—He advised (I think) too much ploughing, that would cause the fertilizing gasses to escape from the soil. They rise and are carried away.

Judge Van Wyck approves shallow planting especially for Indian Corn.

Dr. Underhill.—I plant corn from two inches to two inches and a half. Wheat about two to three.

Mr. Pike.—I put wheat in as near three inches deep as I can.

Dr. Antisell.—The island of Ichaboe, on the western coast of Africa, was cleared of the deep deposits of guano, and in the very short time which has elapsed since, a new deposit of the depth of about eighteen inches has been made.

The Secretary stated that a few months ago, the Institute sent by Mr. Uzziah Wenman to Prussia, a copy of its transactions as published by the State. He delivered them to the Royal agricultural society at Berlin. They were received with much satisfaction, and that society returned to the Institute fifteen volumes of their transactions, and ask for free and full interchange.

Mr. Bowman —I ploughed my land in Virginia about eight inches. Much of the land thereabout was badly cultivated. A harrow was used to drag down the last year's corn stalks, then with a shovel-nose plough cut a shallow furrow, some three inches deep, in which the corn was planted. The crop from an acre so cultivated, the yield was about two barrels of corn, (about ten bushels.) I have seen three bushels of wheat the yield of an acre, yet that soil had plenty of potash in it.

Mr. Meigs.—Mr. Madison after he left the Presidential chair, became president of an agricultural society. There he delivered some very able remarks on agriculture. Among other things, that the natural depth of soil all over level parts of the globe never cultivated, does not exceed one foot as a general rule. The soil will not in the lapse of ages increase, altho covered with vegetable and animal life from creation. Malthus in his work on population, calculated that in the year 1000, the population of Great Britain was about one million, and that in the ordinary way of increase there have been born since so many human beings that there would be five or six thousand bodies for every square yard of the land.

A like calculation in reference to the other animals and the trees &c., will be convincing as to the doctrine of Mr. Madison, that the almighty gives us one foot of soil, which is as deep as we can con-

veniently till it, and that this one foot is the laboratory in which all vegetable and animal life are wrought out.

Grafts, Cuttings and seeds were distributed.

Dr. Underhill, proposed as subjects for next meeting grafts, cuttings, seeds and planting.

The Club adjourned.

H. MEIGS, *Secretary*.

April 23d, 1850.

HON. ROBERT SWIFT LIVINGSTON in the Chair. HENRY MEIGS, Secretary.

Mr. Meigs.—*Early planting of Potatoes*.—The experience of several past years, has proved that the early planting of this most valuable vegetable, is most free from the evils which have of late beset it.

And besides that; the mode of planting has become of great importance. Mr. Williams of the State of Maine, has demonstrated by results of unquestionable truth, that when the *but ends* and *seed ends* of the potatoes are cut off and planted, the produce is as 40 for the *but ends*, as 60 for the *seed ends*; and from the middle, cut in two parts, as 160; thus showing the superiority of the centre to be 60 per cent in quantity.

We have often adverted, (in this club) to the great utility of birds as destroyers of insects, injurious to vegetation. Any observer of the habits of many birds, will testify to the great destruction of the insect enemies of our gardens and fields by birds. We therefore hail with great pleasure the recent passage of a law, by our good neighbour the State of New-Jersey, imposing a fine of five dollars on any person who shall kill, (*off his own place*;) the night or musquito hawk, chimney swallow, martin or swift, woodpecker, whippoorwill, cuckoo, king

bird or bee martin, clape or highhole, cat bird, wren, blue bird, meadow lark, brown thrasher, dove, fire bird or summer red bird, hanging bird, ground robin or chewink, boblink or rice bird, robin, snow or chipping bird, sparrow, carolina lit, warbler, black bird, blue jay, and small owl. Or destroying the eggs of any of the birds aforesaid.

Such an act as this would grace any state, and if carried out by honest and firm government would enoble any empire.

Birds constitute almost entirely our police against insects injurious to vegetation, and when permitted to multiply, they will be in force about equal to the mischievous power of the countless hosts of insects, for one wren will destroy in a day more than ten men can do. Jersey protects the birds, and the birds of Jersey in a few years will excite the astonishment of mankind by their numbers, song, utility and beauty; now and then some birds will take a taste of our fruit, but for one cherry pecked by a robin we are freed from ten thousand noxious insects. The Legislature of Jersey might have included even bats along with the night hawk, for they sally out after sunset and sweep the air of insects which fly by night.

This is no light subject, for man has suffered famine and pestilence in all probability, little less from insect legions than from war. The Hessian fly is more to be feared than a hundred thousand armed men from Hesse Cassel, and perhaps after all our vain research after the cause of the potato disease, we may ultimately discover it to be owing to some very minute insect which the bat swallows by thousands at night or birds by day. The huge whale is known to subsist on the minute animals whose *centillions* abound in ocean, and his daily occupation is to take them into his capacious jaws and strain them through his whalebone sieve.

Famine has followed the trail of insects often in the history of men, and pestilence has been found to follow in the rear. Let our beautiful birds then abound! Let us teach them not to fear us.

Dr. Underhill, moved that the thanks of this club be tendered to the Legislature of the State of New-Jersey, for the passage of the law,

protecting the birds which protect us from the ravages of insect ; and the club entertains the hope that all our States may follow. And that the secretary communicate a copy of this resolution, to the Legislature of that State.

Unanimously adopted.

Dr. Underhill.—I wish that the crow had been included in the admirable law we have just read. The moral courage required is not less than the wisdom, to pass such a law. If all men were aware of the incalculable benefits which we obtain from the birds, no one would touch an egg, or harm the useful creature. The crow does more good when he follows the farmers plough, and swallows immense numbers of the grey, the black and the white grubs, which do a hundred times more harm to the crops, than the crows do to the seed. Besides it is so easy to prevent this useful bird from picking up your seed corn. Carry a white cotton line around the field, supported on poles about ten or twelve feet high, and crows will not go inside for a long time ; but if he should, you may hang here and there bits of bright tin to the line, these turning about and *casting reflections*, make crows utterly avoid the interior. The good done by destruction of these grubs which are the larva of insects, is double, for both as larva and insects they are enemies of our crops. Further we should soak the seeds over night in a solution of salt petre, made by dissolving one ounce of it in one quart of hot water, when you can bear your hand in it, then put in the grain and stir it well. Next day pour off the water and roll it in plaster of Paris, or wood ashes, so that every grain gets a coat. Soak the Indian corn in the same way, and next day stir it in a solution of a wine glass full of tar in a quart of hot water ; when the water is cooled so that you can bear a hand in it. This we call glazing the corn ; then roll it in plaster or ashes as above.

Dr. Elliot.—Unless this glazing be very thin there may be difficulty in the growth of the corn.

Dr. Underhill.—Some of the small birds, one of the woodpecker can even *scrape off from the leaves of the trees with their bills*, the aphids of eggs of insects deposited with a glutinous mass to make them stick. The Southern States protect the turkey buzzard by a *fine of*

ten dollars for killing it. Our little cat bird is a great destroyer of caterpillars; it will hardly touch any thing else for her own eating or for her young. There is a sort of fascination in our wild cherry tree for butterflies. For the deposit of their eggs, no tree of the forest is so much covered with the nests of caterpillars as this. I cut them down. The wren feeds on a variety of insects, helps the bees much, by eating the moths so detested by the bees. The wren busies itself among the bees, all of whom are pleased with its company. Our king bird has been supposed to eat bees, and one of his names is Bee Martin, but that is a great mistake, he watches the bees as they pass him, never touches one of them, but the instant *he sees a drone he snaps him up.* The bees themselves kill off drones when the supply of honey is a little short.

The Chairman.—That is so.

Dr. Underhill.—Within seven years past we have had an invasion from the aphid by millions on millions. They almost destroyed all the leaves in some of our orchards. This occurred after our woodpeckers had almost disappeared from among us; it was then came the myriads of aphid. Our heedless sportsmen had destroyed or frightened our birds; sure am I that they would not have fired upon the birds if they had known their value. Lately some woodpeckers have appeared, among them, the little one which scrapes off the eggs as before observed. The legislature of New Jersey deserves the greatest praise for its moral courage in facing the prejudice of those who do not know the immense utility of the birds protected by this new law. I wish that the prohibition may be extended to the owners of the farms also. Some of these protected birds are among the sweetest songsters of the grove, some of them pour out like the boblink, a deluge of melodious notes. This boblink, is the *reed bird* of Carolina, the *ortotan*, &c. We must follow the noble lead of Jersey in this matter. All governments should do so. Encourage the study of entomology [insects] and that of birds in reference to them. The members of this club can do much good by careful attention to the habits of insects, and giving at the meetings faithful statements of what they have discovered. If any man shall find out how to protect his own crops, he will be far ahead of others, for we lose three quarters of our cherries

by the larva put into them by some insect ; pears also and nearly all the plums except the winter gage, especially below the highlands of the Hudson.

Chairman.—But it has now nearly reached the lakes!

Dr. Underhill.—When we have a good crop of plums, it is when we have had an uncommonly cold spring. Among the plums the damson (*damascene*, or plums of Damascus,) has not escaped. The admirable effect of pure ripe fruit, on the human constitution, induces me to urge the importance of caring for it in all its perfection. No fruit attacked by insects is proper to eat. Professor Agassiz, remarked to us that our insects have peculiarities different from those of Europe ; and he intended to study them ; there is no doubt but that he will attend to it.

Hugh Wardle, of Staten Island, presented a sample of Arnotto manufactured by him at his works on Staten Island, together with the following statement : The colouring of cheese is more important than most persons are aware of. It ripens the cheese, prevents in a great measure the formation of air cells by neutralizing acid, the cheese commands a higher price and is ready for exportation at least one month sooner. To use it in colouring the cheese, pour a half pint of boiling water upon three quarters of an ounce of the Arnotto, *or the weight of two cent piece* for every hundred pounds weight of cheese, strain the solution through linen, and mix it with the milk, before the rennet is put in.

Mr. Wardle will prepare a statement in writing of his whole process, for the Institute.

Dr. Elliott.—The greatest care is requisite ; the curd is first very tenderly pressed &c., by the hand, and but little whey is then taken away from it. It is after this broken up again with increased pressure by the hand, and soon until the last handling ; then the curd is *heavily pressed by hand*.

Judge Van Wyck.—I view the communication of Mr. Wardle, as highly important. The butter and cheese of our country, is of very

great value, employing now a large number of our farmers who make enormous amounts for export, as well as home consumption, at a very small expense to themselves; the difficulty has been and is yet, to make a good article. It seems now by Mr. Wardle's statement, and by the experience of many that good management, gives double value to our cheese. The importance of pure annotto to our dairies is great: adulteration is so easy.

As to the injurious insects, common salt is one remedy as far as it can be applied, and it is also one for mildew. In England Dr. Cartwright applied a solution at the rate of 8 or 10 ounces of salt, in one gallon of water on a wheat field in stripes, and all the stripes sprinkled with it proved entirely free from mildew, and the other stripes not salted, all lost by it.

Mr. Meigs, Arnotto as described by Lindley, in his great work, the Vegetable Kingdom, is of his 110th order called *Flacourtiacea—Bixads*. Almost all of them inhabit the hottest part of the East and West Indies and Africa; two or three at the Cape of Good Hope, one or two in Zealand. The Bixa Orellana contains angular seeds, covered with an orange red waxen pulp or pellicle; this is the Arnotto. It is separated from the seeds by washing. It is chiefly used in the preparation of chocolate, was reckoned an antidote to the poison of the maniot or janipha manihot.

Subject for next meeting—Insects, seeds, planting, grape vine, Starr's exhibition of minute insects by his solar microscope. Adj.

H. MEIGS, Sec'y.

On reading the recent law of New Jersey for the protection of that class of birds which protect our vegetation from the ravages of certain insects, and after discussion had thereon:

On motion of Richard T. Underhill, M. D. of Croton Point,

Resolved unanimously, That the thanks of this club be tendered to the Honorable Legislature of New Jersey for the law passed by it, for the protection of that class of birds which protect us from the ravages of insects in our crops, and the club entertains the hope that all our states will follow this intelligent and noble example.

Resolved, That the secretary transmit a copy of this resolution to the Legislature of New Jersey.

A true copy from the minutes.

Farmers' Club, April 30th, 1850.

Judge VAN WYCK in the Chair. Mr. HENRY MEIGS Secretary.

Mr. Meigs observed that there are now ascertained about 300 species of Curculio. All this race are Coleopters, that is, have shelly covers for their wings. Their larva are very small oblong soft worms, with six legs, which are scaly, and its head also is. Larva signifies mask, owing to the purpose it serves of masking the perfect insect. This larva penetrates grain and wheat; in wheat it obtains the name of weevil. One small species enters the elm leaf and eats a habitation in it on one side, which turns yellow; this dwelling swells a little, and is termed a bladder. At the next stage this curculio pierces the bladder and jumps out of it; its hind legs and thighs are adapted to active leaping.

Lieuwenhoek observed the Aphides carefully, and found that a single pair, male and female, beginning on the first day of June, had in three months seven hundred thousand descendants.

The Greeks called the insect *Entoma*—meaning cut in two; the Latins called it *Insectum*, meaning the same thing, the thorax or breast being almost divided from the abdomen or belly. Naturalists have attributed to Solomon, the great King of the Jews, the first writings on the subject of insects, and lament the loss of those writings. From Solomon to Agassiz, this subject has been deemed of great im-

portance and it has occupied about three hundred distinguished writers, including Aristotle, &c.

Swammerdam gives to insects an equal if not superior dignity to the large animals. He says, "while we dissect with care the latter, we are filled with wonder at the elegant disposition of their parts, and to what a height is our astonishment raised when we discover all these parts arranged in the least insect in the same regular manner. Notwithstanding the smallness of ants, nothing hinders us from preferring them to the largest animals, if we consider either their unwearied diligence, their wonderful powers, or their inimitable propensity to labor. Their amazing love to their young is still more unparalleled among the largest animals—they not only carry them to places where they can get food, but if by accident they are killed and cut to pieces, the parents will carry the pieces away in their arms. Who can show such examples among the larger animals, which are dignified with the title of *perfect* !

Barbut thought that the antennæ of insects were their organs of hearing—however this may be doubted by entomologists, it is evident that they enjoy the faculty of smelling, although the seat of the organ is not agreed upon. The celebrated Latreille believes that it is in the antennæ. Most insects have two eyes, the gryinus has 4, scorpion 6, spider 8, and scolopendra *three*. Insects have no eyebrows, the external tunic resembles water crystals. Lieuwenhoek found 800 such glasses in the eyes of a common fly ; Pugett found in that of a butterfly 18,323 such lenses. Their organs of breathing, called *spiracula*, are curiously situated on each side of each segment of the abdomen. There are no hermaphrodites among them. There is a very great singularity in the mode of propagation of the Aphis. A female when once impregnated continues to have young ones as long as to the fifth or sixth generation, and then is impregnated again ; the male insects, like hawks, are smaller than the females. The Coccus and the Oniscus no sooner bring forth their young than these children fall upon their mothers and eat them up. The *Sphex* kills the caterpillar of a moth, buries it in the earth, and there deposits her eggs in it.

The Larva at length becomes a Pupa, so called because the perfect insect is found wrapped up like an infant in swaddling clothes. This state was formerly called chrysalis and aurelia, because in some of the Pupa it had gilding on it, which is the meaning of both chrysalis and aurelia. Swammerdam made out distinctly the whole perfect insect so wrapped up as not to be sensible to common observation. The larva are very voracious, and are generally larger than the perfect insect. The third and last state is termed *Imago*,—image. The creature is now perfect ; is now capable of propagating its species.

Mr. Pike remarked that the rose bugs show so great a preference for wild grape vines over our cultivated sorts, that where the wild vines are placed among the civilized ones, the rose bugs attach themselves to the wild ones altogether. The cherry tree is a favorite of this bug which is generated in it, and not in holes in the earth as Dr. Underhill has supposed. My object in introducing the wild vines on my plan was to form an harbour of them ; not in regard for its fruit.

Judge Van Wyck.—My Isabella grape vines have been sometimes infested with the rose bug. I tried to smoke them with sulphur but it seemed to have no effect on them, I also tried other disagreeable smokes in vain. The rose bug goes into the gerin of the grape blossom and ruins the fruit. I finally resorted to broad tin pans and brushed off quarts of the bugs into them. Agassis recommended this course or something like it, to be pursued in whole districts at once against insects generally, and by the certain death of some to diminish their numbers.

Mr. Pike.—I tried to kill insects by pouring strong brine about the roots of fruit trees. *I killed some of the trees by it.*

Judge Van Wyck.—Common Salt is useful when applied in moderate quantities ; it is very good for the growth of grapes and some other plants.

Mr. Pike.—The hardy scaly shells of many of the bugs prevents their being destroyed by strong applications.

Judge Van Wyck.—Those vines which had been somewhat thinned of fruit by the bugs, produced in consequence of that much finer fruit.

Mr. Pike.—I like for a dressing for grapes a compound of twenty parts of charcoal, pulverized, to one part of common salt; charcoal seemed to protect fruit trees from insects.

Judge Van Wyck—I agree with Dr. Underhill that the rose bugs come out of holes in the earth; naturalists mention many insects which do so. Our 14 or 17 years locusts are well known to do so, and I have seen them in the very act of coming out.

Mr. Pike.—Spread pulverised glass about the roots of trees and the bugs can neither get in or out. I gather my knowledge by constant observation on my own farm.

Same subjects, seeds and planting, insects and the grape vine, to be continued.

The Club adjourned to the next regular meeting on the 7th of May.
H. MEIGS, Sec'y.

SILK WORM FED ON OSAGE ORANGE.

New-York, April 30th, 1850.

HON. HENRY MEIGS—Dear Sir.—During the great rage for the *Morus Multicaulis* and silk worms, I purchased a quantity of the eggs of that worm. They came out when spring lettuce was in perfection, so I fed them on it for about two weeks, or till they were sufficiently large, and strong to eat coarse food. I then divided them into two equal parcels—one of which I fed on *Morus Multicaulis* leaves, the other on the young and delicate leaves of the Osage Orange, *Maclura Aurantiaca*, renewing regularly the supply twice a day with each parcel. I soon discovered the latter grew much faster, and were by far more healthy than the former, although each were in the same room, had the same light and air, and as much food as necessary.

When the time arrived for them to spin, I made white paper bags, of conical shape, put them in, and secured them against the wall. Much to my surprise and gratification, I found, when I took them down, all, without a single exception, that had eaten of the Osage Orange leaf had spun perfectly white cocoons, the silk of which was as strong, if not stronger than the other half, which had spun yellow.

I do not recollect ever having seen a statement of worms spinning perfectly white silk, and believe no one has tried the leaf of the osage orange as food for them.

I remain, &c.,

GEO. S. RIGGS.

of Baltimore.

Farmers' Club, May 21st, 1850.

HON. ROBERT SWIFT LIVINGSTON in the chair. HENRY MEIGS, Sec'y.

Mr. Meigs read the following papers, prepared by him, to illustrate the relative importance of Agricultural wealth and the precious metals :

Gold from South America in old times.—The Spanish writers of authority concur in the statements, official and of estimate, as to the amount of gold and silver obtained by Spain from America, from the year of discovery, 1492, down to the year 1780, *i. e. two hundred and eighty-eight years*. By the official account, that which paid duty to the King was *five thousand six hundred and sixty millions of dollars*; and that there must be added to this vast sum at least as much more, introduced without knowledge of the King, or rather unofficially, or in the whole, about *twelve thousand millions of dollars*.

If we should receive from California three millions of dollars a week, or more than four hundred thousand dollars a day, for eighty years, *i. e.* from this time to the year 1930, we shall then have received the same amount which Spain did. We have free hands to get the gold ; Spain destroyed thirty millions of men by the labour in the mines.

By a report to the British Parliament in 1845, it appears that the value of the *Agriculture* alone of that little spot, in one year, was three thousand millions of dollars ; and taking out four winter months, then we have in eight months, from that *God blessed national work, Agriculture*, as much value as Spain derived in 72 years from the gold and silver, and the destruction of some seven millions of men.

About the year 1500 a new era commenced, that which bore the art of printing, the discovery of America, and of many portions of the Old World also, and re-discovery of those magnificent arts of antiquity, most of which we cannot equal, and seldom succeed even in copying. Spain is believed to have been almost mortally wounded by those streams of gold ; it is yet doubtful if she ever recovers from it. But those nations who got all this gold from her, have been steadily advancing in wealth, population and power ; so that poor Spain seems to have suffered all the punishment, while her neighbors have benefitted by it.

INSECTS.

H. Meigs.— At the last meeting of the club, I spoke of the three stages of insect life, from the larvae to imago. Of the latter which is the perfect creature and capable of reproducing its race, I propose to say a few words. In the first place, let us consider the dress in which the creature is seen as an imago. Great numbers of the *Coleoptera*, (shelly covered wings) appear on close examination, and the more highly magnified by microscope power, the more gorgeous does their armour appear. All the splendour which can be furnished by coats of burnished steel, copper, brass, gold or ivory or ebony or cobalt or ultramarine blue, or that glorious changable colour of green and gold, appear on this colepter race. As to the butterfly, all acknowledge the royal splendor of its robes ; but those who have not seen it in high magnified condition, do not know how surpassingly glorious it is, when compared with man, or any robe he ever wore.

Even the poor blue bottle fly, presents a dress of burnished cobalt of inimitable beauty. There is little doubt that all the precious minerals are elaborated to provide these insect knights with their imperial armour ; nor is it to be denied, that diamond is used in the equipment of many of them.

The exquisite keenness of sight in them is certain, from the fact that a cloud of the smallest flies dancing in the beams of the sun, darting past each other in swift career, never hurt one another. The ground beneath their airy field sport has been often examined, in order to find some one killed or wounded or some leg or wing. No such evidence of even accident has ever been found.

The dragon fly is found in one of the ages preceeding the general order of animals as now existing. He was in company with the Megalosaurus, Ichthyosaurus, Plesiosaurus, the bird like bats, &c., a list of only 17 animals and vegetables as restored by Coneybeare.

The dragon fly moves with great speed, and at the top of it, instantaneously by a clash of his wings, changes his course so sudden and so perfect in this reversed action, that as far as the most close observation can ascertain the fact, the dragon fly after the clash of his wings, does not proceed an inch further in the direction he had at the instant of the clash of his wings.

The bee is believed to keep such an eye upon his hive, that at any moment, at the distance of several miles, it can commence its return to the hive by running his well known aerial rail track so straight that it has all the character of a mathematical right line, that is, the shortest distance between two points. A right line is properly styled a bee line therefore.

The study of insects is but commenced, after all that has been done. For protection to our crops against our insect enemies, many a vain effort has been made ; but great as is their power, we may, by careful study and some universal practice, conducted at some period of the insects stages, attain the mastery of them. That is, for all farmers and gardeners, in any district or county, at some agreed time when the enemy is most easily assailed, to exert every means for their simultaneous destruction.

The birds of Africa being so vastly numerous, that the grain is preserved by them from the insects, are found to be under the necessity of consuming rather too much of the grain which they thus protect

from insects ; and consequently, the farmer there is obliged to have persons constantly employed in scaring away the birds.

Subject to be continued.

H. MEIGS, Sec'y.

INSECTS.

Hessian Fly.—Lieuwenhoek observed that the reproduction of this insect was so rapid that a male and female commencing on the first of June, would produce in three months, descendants to the number of *seven hundred thousand*.

CURCULIO A COLEOPTER.

About three hundred species have been observed whose principal mark of distinction is color. Their transformations are singular, their larvæ are soft oblong worms, furnished with six scaly legs and scaly head ; while very small they get into grains of wheat or other grain and make their dwellings there, so in some other seeds, some in the insides of plants. A small species gets inside of the leaf of the elm and eats that inside. The leaves of the elm sometimes appear yellow and apparently dead towards one of the edges, while the rest of the leaf is green ; the dead part resembles a small bladder in which the worm inhabits until its transformation, when it pierces its bladder and comes out a small, active, leaping curculio, for which purpose its hind legs are well adapted.

The Coleopters are all insects which a sheath for their wings. Coleos meaning sheath, called also a mite, a weevil, &c.

Revue Horticole—Journal D'Horticulture.

Pratique, Paris Sept. 1848.

Translation by Henry Meigs.

Charged by the central committee of agriculture of the Côte d'Or, to examine and report on the culture of the grape vine, without any supports or props, as practised by the Abbe Cornesse, at Champagne

sur Vingeanne, I visited the vineyard of that honorable pastor three times, and he gave me the following information to which I have added some observations of my own.

In this plantation the medium distance between the vines, is as near as possible, twenty inches, so that a spot of four ares (100 square metres) in good cultivation gives 1500 vines; some such spots have 1200, and others nearly 2000. The rows are twenty inches apart. No manure is added after setting them out. The weeds are pulled out by hand, and the rows are hoed. In pruning in the month of March, he leaves from two to five shoots on each vine.

GRAIN—GRAMINACEA—GRASSES.

Nothing relative to this tribe can be uninteresting to man, when we consider its vast importance to him. The following geographical distribution of grasses by *Schouw* is useful, (viz :) "This family is very numerous: Persoon's synopsis contains 812 *species*, being *one twenty sixth* part of all the plants enumerated in it. In the system of Rœmer and Schultes there are 1800, and if that work was perfected, it would probably contain 40,000, of which the grasses would form a twenty second part. It is more than probably however, that in future examinations, it will be found that the number of grasses will be increased in a greater proportion than the other phanerogamic plants. Among the grasses there are both land and water, but no marine plants. They occur in every soil in society with others, and entirely alone, the latter to such a degree as to occupy entirely, considerable districts. Land is not favorable to this race, but even here and there are species peculiar to it. This family has no limits other than that of the whole vegetable kingdom; some grow under the equator, and the *Agrostis Algidia*, is one of the few plants found on Spitzbergen. The difference between tropical grasses, and those out of the tropics, is their greater growth; some of them assume almost the appearance of trees; some species of bambusa are from fifty to sixty feet high. The compact green turf of the fields and meadows of the temperate zone, is entirely absent from the torrid zone. The distribution of the cultivated grasses, is one of the most interesting of all subjects, and is not determined merely by climate, but depends on the civilization, industry and traffic of the people.

In Siberia, grain grows as far north as the sixtieth degree of latitude, but in Kamschatka it does not grow even as far as 51° . But, in the continent of North America, in the Russian district in latitude 57° , rye and barley reach maturity. In Lapland, grain is matured as far as latitude 70° north ; beyond that some potatoes grow. The grains which reach farthest north in Europe, are barley and oats, and form the chief vegetable food of the inhabitants of the northern parts of Sweden, Norway, Denmark and all the borders of the Baltic, north of Germany and south of Siberia ; in the latter, another very nutritious grain, the buckwheat, is very frequently cultivated. Rye is the next grain which associated with barley and oats, is the prevailing grain in a great part of the northern temperate zone, viz: in the southerly parts of Sweden, Norway and Denmark. To these grains there follows a zone in Europe and western Asia, where rye disappears and wheat almost exclusively furnishes the bread ; then comes the grape-vine, then the rice. Rice is next, and flourishes in and near the torrid zone ; maize predominates in America whence it came ; rice in Asia, its original seat and both of them in Africa. Our principal grasses grow to about three or four feet in height, in Europe ; but on the banks of the Amazon the *Panicum spectabile* reaches six to seven feet high.

Of wheat there are fourteen species, and this most precious gift of our creator is one of the few plants which cannot be hybridized.

H. MEIGS.

Insects.—At the last meeting of the club, I spoke of the three stages of insect life, from the larva to imago. Of the latter, which is the perfect creature and capable of re-producing its race, I propose to say a few words. In the first place, let us consider the class in which the creature is seen as imago. A great proportion of the coleoptera (shelly covered wings) appear on close examination, as especially under a high magnifying power, to be clothed with armour of gorgeous splendor—all that can be furnished by coats of burnished steel, copper, brass, gold, ivory, or ebony, or cobalt or ultramarine blue, or that glorious changeable color of green and gold. As to the butterfly, all acknowledge the imperial richness of its robes, but those who have

not examined them with high microscopic power, do not know how surpassingly glorious it is when compared with the miserably coarse appearance of the robes of ladies or monarchs ; even the poor blue bottle fly presents a coat of burnished cobalt of inimitable beauty. There is little doubt that all the precious minerals are elaborated to provide these *insect knights* with their royal armour, nor is it to be denied that even diamond is used in the ornament of some of them.

For the protection of these splendid creatures, they are provided with prodigious activity and a keenness of eye-sight, of which we have no conception even with all our best optical instruments to aid our vision. Take the idea of Archimides, that of employing great number of mirrors to reflect the sun's rays from all of them and concentrate them in one focus, so as to set fire to the enemy's ships, then conceive of the sight of a dragon fly.

Dr. Underhill, of Croton Point, remarked that about seven years ago, he noticed a small bug, about one twelfth to one sixteenth of an inch long, of a blue black color, resembling that of some specimens of Anthracite coal. It attacked the buds of grape vines, and devoured the germs, and probably left its larvæ there. I have not seen many since until this spring. It attacks such vines as are near or lying on the ground, seldom those which are trellised up.

As to planting seeds, I find great benefit in the following treatment of corn before planting : I put one ounce of saltpetre in a quart of hot water, and in the solution the seed, and leave it in over night. On the next day I put the seed (after draining it dry) into a solution, made by one gill of Tar in a quart of hot water, for half an hour well stirred up. Take it out, and all of them will have a thin coat of tar ; I then roll the seed in pulverized plaster of Paris.

Mr. Pitts, of Brooklyn, said that notwithstanding this operation, the *chip monk* squirrel will dig them up, but will not eat them.

Mr. Dederer, of Blauveltville, Rockland county, said that he had used the tar on seed with good effect

Dr. Underhill observed that the soaking in the solution of saltpetre stimulated the vegetation. As to planting potatoes, he said that if a potato be cut into three parts, and the middle section only be planted, the crop will be much better in growth, and will be one-third more ; that the fewer shoots sent up by the middle section favor the crop much. . I hope that our farmers will try this plan fully.

Judge Van Wyck.—As to the methods of planting potatoes and seeds, there is still much contradictory opinion held by our farmers.

Judge of New-York, said that according to his experience, it was bad farming to plant small potatoes.

Judge Van Wyck.—The vast *power* of insects to injure our crops is owing much to their numbers, but yet more to their minuteness, and I may say, to their *weakness*. On that account we cannot grasp them as we can larger enemies more sensible to our sight and touch; and moreover their changes of form are so remarkably great, that we do not know them in their several mutations unless we are very careful indeed in our observations. They perplex us greatly in our endeavours to find them out. The caterpillar race attacks root, leaf and fruit. In the grub form they destroy often our Indian corn crops. A distinguished entomologist (Dr. Harris, an American,) considers this caterpillar race as fully destructive, if not more so, than any of the insect tribes. He styles some of them subterranean, (working under ground,) others superterranean, (working above ground.) Among these are the grub, the cut worm, and wire worm ; they are the *agrotidean* race. The grub cuts off roots, it attacks our Indian corn in June and July. The cut worms come to the surface and there cuts off plants. The wire worm does so to. Those excellent authors Kirby and Spence, of England, throw great light on the subject of insects. When land has been left for some time in turf, then ploughed and corn planted, the subterranean caterpillars sometimes cut it to pieces. A valuable and curious experiment has been tried in England : From a field where these caterpillars abounded, *sixty-three bushels of the mould* were taken up and sifted, and out of that quantity *twenty-three bushels* of the caterpillars were found. The crop of grain which had been on that field was entirely destroyed. Some-

times in meadows, they cut off all the roots, so that the upper part of the turf may be rolled up like a carpet. Dr. Harris advises the soaking of seed in a solution of copperas, the grub then will not touch it. It has been found that sowing a small quantity of common salt in a field, or lime, or unleached ashes, or plaster of Paris, is good to destroy insects. I have seen wheat sprinkled with lime dust saved from the Hessian fly, while the adjoining half of the field was nearly wholly destroyed by that fly. These applications also defend our crops in a measure from the birds, and make them more hungry after insects.

Dr. Underhill.—The best plan, as to sod, is to plough it deep in the fall, so as to expose the insects to frost for that destroys them; and this method should always be pursued; *millions* of the insects are thus killed in one month. But if you omit the ploughing until spring, you will have them all alive. When I was a school boy I recollect, that on one occasion, I helped to roll up the sods cut off by worms, in great masses. The destroyer in that case is the black or large white grub, so called. The farmers that season were obliged to plough up their corn fields and to plant all over the second time, on account of the *black grub*, and they *ate up* that second growth. They then ploughed again and sowed buckwheat.

Mr. Pitts.—We find that grub in cultivated fields, not in new lands.

Dr. Underhill.—That is true.

Judge Van Wyck.—Insects do not like lime or salt. They will not climb a tree washed with lime.

Dr. Underhill.—Sprinkle lime or ashes on melons and cucumbers early in the morning, while the dew is on them. I have lately visited the fine farm of Mr. Manice, of Long Island. He has a piece of land surrounded by a high fence; it is about 200 feet long by 150 wide. Here are his plum trees, and *the whole surface is paved with bricks*. The trees are about twelve feet apart. The result of this has been, that instead of the constant loss of the crop he has as many

plums matured as the trees can well bear ; for the curculio now attacks so few of them, that those destroyed are a real benefit to the rest. He is convinced that his high fence is ineffectual ; that the pavement is the protection. It has been found that where the plum tree hang partly over water, that side bears fine fruit, while the rest hanging over land is ruined. So much for the sagacity of the curculio, which does not permit him foolishly to drop his child into water and drown it.

Mr. Meigs, has noticed the fine fruit of Damson, growing in midst of stone pavement.

Dr. Underhill.—Some seemingly insignificant fact, which has escaped the observation of men for all passed ages, once brought to light and put into general use, may add millions to our wealth. For protection to one of our finest fruits, the plumbs, *the pavement* may be found a cheap means. Planting so as to spread over a pond, or stream of water is a protection.

Mr. Dederer.—Turn up rich land in December, and we have seen it white with the white grubs, it looks as if it was sprinkled with lime. Tarring the trunks of trees has been much tried, but the surface of the tar soon becomes so glazed, that the caterpillars easily crawl over it.

Dr. Underhill.—The canker worm ascends the tree. A small gutter encircling the trunk and filled with oil stops them.

Subjects for next meeting, insects, seeds, planting, grape vine

The Club then adjourned.

H. MEIGS, *Secretary*.

INDEX.

	Page.
Addresses at the 22nd Annual Fair,.....	305
Henry Meigs, "Opening,"	305
Levi Woodbury, "Anniversary,".....	313
John Alburtis, "Progress of the Mechanic Arts,"....	342
Thomas Antisell, "Philosophy of Manufactures,"... 354	354
George Gifford, "Patent Laws,".....	365
James M. Crane, "Manufactures of the Southern States,"	393
James Tallmadge, "Closing,".....	406
Advantages of Muck in Agriculture,.....	117
Agricultural wealth of France,.....	458
Alburtis' Address on the Progress of the Mechanic Arts,.....	342
Alderney Cattle,.....	116
Alpaccas of Bolivia,.....	128
American Institute, Officers and Trustees,.....	3
Analysis of the Excrement of Cows,.....	457
Hogs,.....	457
Horses,.....	458
Sheep,.....	458
Antisell's Address on the Philosophy of Manufactures,.....	354
Appleton on the Alpaccas of Bolivia,.....	128
Barrilla—letter from Chas. Henry Hall,.....	107
Bay State Shawls,.....	168
Books presented to the Library of the Institute by Mons. Alex.	
Vattemare,	421
Buck Bonaparte,	114
Butter,	109, 110, 151
prices of, 1782 to 1832,.....	153
Chandeliers, Lamps and Gas Fixtures,.....	170
Colts' communication in relation to Alderney Cattle,.....	116

	Page.
Congress of Fruit Growers,.....	189
Crane's Address on the Manufactures of the Southern States,..	393
Cultivation of Rye,.....	112
Tea in South Carolina,.....	134
Dodge's Improved Cop Spinning and Winding Machine,.....	173
Dorking Fowls,.....	111
Dick's Antifriction Power,	175
Edges' Instantaneous Illuminator,.....	173
Endicott Pear Tree, (the).....	123
Entries of Stock at the Cattle Show,.....	14
Farmers' Club, Reports of Meetings,	441
Financial Condition of the Institute,	10
Flax,.....	160
France, Agricultural wealth of,	458
Fruit Growers' Convention, Proceedings of,	189
Gifford's Address on the Patent Laws,.....	365
Grasses of the United States,.....	136
Gigantic Water Lily,	479
Gutta Percha,	165
Helmes' Method of making Butter,.....	109
Horticultural Report, 22d Fair,.....	87
Indian Corn,.....	113
Imports of Linen, 1830 to 1848,	159
Jesup's Method of making Butter,.....	110
Lands of Long Island,	181
Litchi of China and its Culture,.....	448
Longworth on the Manufacture of the Sparkling Catawaba Wine,.....	157
Madder,	171
Manure for Grape Vines,	489
Meigs' Address,—Opening of the Fair,.....	305
Meriam on Temperature,.....	299
Merino Prize Sheep,	115
New Garden Plants in the Himalaya Mountains,	485
Officers and Trustees of the American Institute,	3
Bell on the Advantages of Muck in Agriculture,	117
Premium awarded at the 23d Annual Fair, 1849,.....	21

	Page.
Production of Barilla,.....	107
Receipts and expenditures of the Institute,.....	10
22d Fair,.....	16
Reports of Committees,	79
the Agricultural Committee,.....	79
Managers of the 22d Fair,	13
Superintendent of the Horticultural Department,....	87
Trustees of the Institute,.....	7
on Browne & Lombard's Saleratus Manufactory, ...	105
Plowing and Spading,.....	80
Testing of Plows,.....	84
Townsend's Field of Corn,.....	101
Sharpe's statements in relation to Indian Corn,	113
Shawls,.....	168
Silk,.....	169
Sparkling Catawba Wine,.....	154
Steel,	162
Stuyvesant Pear Tree,.....	172
Tallmadge's closing Address,.....	406
Tea in South Carolina,.....	134
Van Wyck on the Grasses of the United States,	136
Vineyard years 1200 to 1700,.....	427
Wine,.....	154
Woodbury's Anniversary Address,.....	313

